

G

Mo. Valley	Madison City	Akron
Drum Park	Clear Lake	Dup. Park
Logan	Imwood	muscutine

Sioux City	So Omaha	Thurittland
Gargant's Bluff.	Co. Muffs	Woodbine
9 corner	Chalsworth	909 crescent

This book belongs to
B. Shinnick
Iowa City, Ia.

It can be of no
possible use to you
but he wants it, and
will reward you
amitably if you return
it.

Dr. Morris
glanced

Make West
Barnard
Barnard

1
Aug. 21, 1909

Left Orleans at 6 AM
for Libby.

Spent night at Windsor
Hotel.

Aug. 22
Left by way of the Omaha
(C.M.R.) at 4.33 AM
Stopped at Sioux City for
breakfast, and reached
Missouri Valley at about
10 AM.

Rained some. Stopped at
The Miller.

After dinner drove out
to Cox's, and took home.
Mr. Peter Cox also has
fine Madonna tooth, which
I will get later.

Visited at Cox's, & then drove
to ridge No. 1 of West side &
collected plants on S. side

and at last.

Met a couple of young men,
student of Ohio State U.,
who are in geology, studying
at Chautauque.

They commenced air their
views on the geological
formations, and I guess
they were a little
surprised to find that the
shabby fellow they encountered
knew anything about it.

Received my suitcase at
9:20, & left for Cedar
Rapids at 10:30 PM.

Aug. 23

Arrived at Cedar Rapids
at 5:25 AM & left
for Iowa City at 6 AM.

Aug. 25-1909 (Wed)

Left Iowa City at 9:30

PM. & Cedar Rapids at 11:35 AM

Aug. 26-1909 (Th)

Reached Mo. Valley at
6:15 AM. Took my basket.
Took breakfast.

Left for Logan at 8:35 AM
with Mr. Fr. Peckenpaugh.

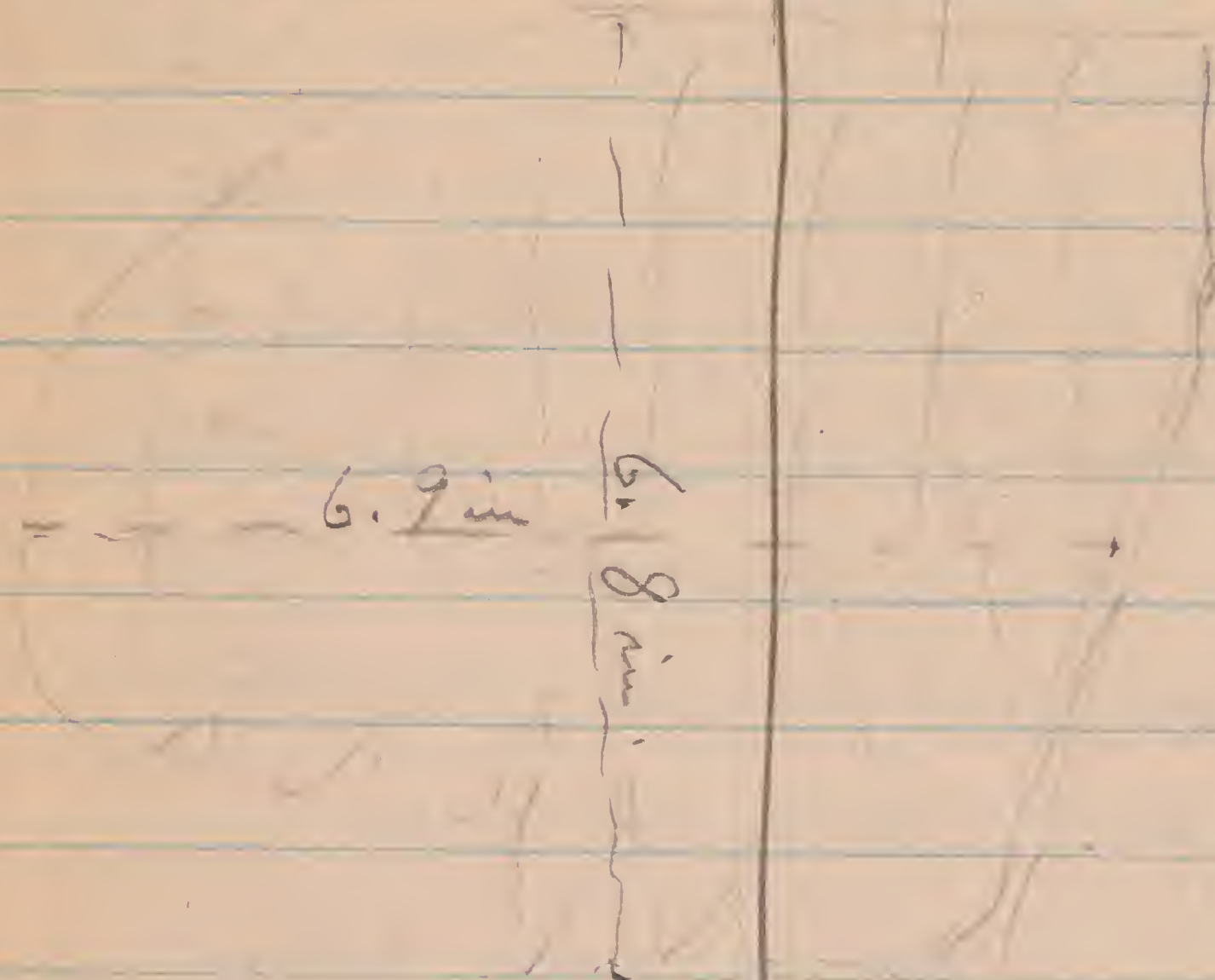
Went to his pit. He has
exposed 9-12 ft. of
sand, varying in composition,
even bedded, & with iron
bands & streaks.

Below this is a layer of
bluish silt, up to 1 foot
thick & below the gravel.
In this he found, near
its upper part, a dip
of a few degrees from

of ribs. The ship
 is probably from pachyderm
 but ribs are too small
 for that.
 We dug into gravel, &
 found it only about a
 foot thick. It rests on
 micaceous limestone.
 The light blue silt rests
 right on gravel.
 This is all typical
 of the formation.

Elephas columbi

9 plates in 3.84 in. from
 center of ridge to center
 thickness (or width)
 2.86 in.



Side view

This tooth was found in gravel
 layer in quarry opp. Logan
 by Mrs. Lester Adams, when
 Illinois Central was being built.
 A fragment of bone, - probably
 part of scapula, - evidently of
 a pachyderm, was found
 with the above. It is flat
 on round surface, & probably
 not a leg bone.



Large tooth, presumably from
 species, not much worn on
 crown - Measured 5 inches
 center to center - 2.26 in
 This is lighter than other
 tooth - more like ivory

This may be *E. imperator*
 Belongs to Thos. M. Adams

Mr. S. H. sec 14 - (W. of Logans)
 Mr. Adams - Hay creek
 upper part in S. H. of N.E.
 This runs about 8-12 ft
 Its lower part is dark
 (black mud) in places, &
 again lighter with iron
 tubes in lower 6 ft.

In places there are streaks
 & bands of gravel, etc.
 In this zone we often
 find

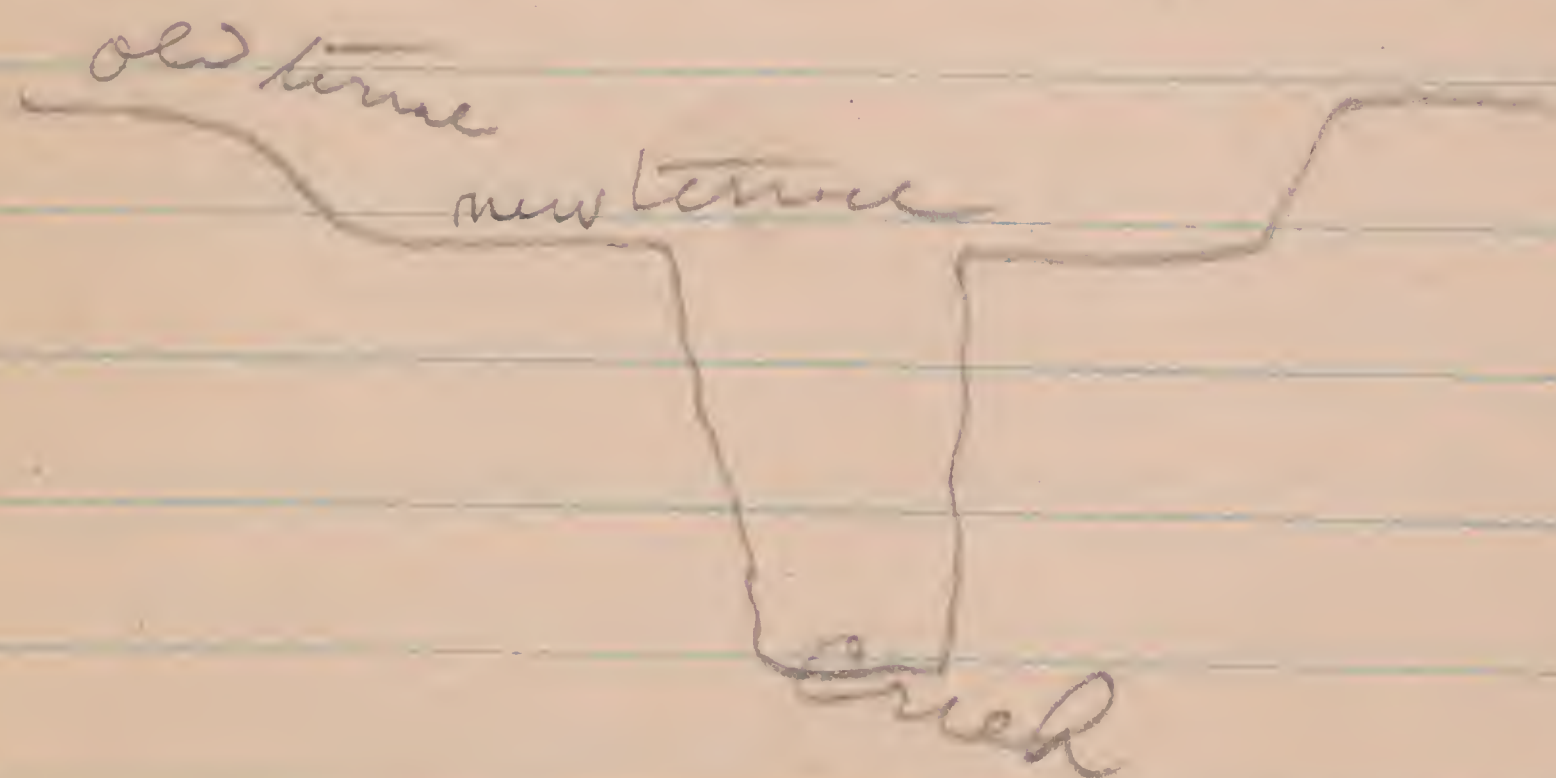
creek is 12-24 ft wide -
 muddy, etc., all
 like Indian River
 or. place.

Many shales in
 alluvial mud (see
 spec.)

There are irregular lime
nodules.

The upper part is again
less sandy, & mostly lighter
though there are streaks
of red (brown), dark, etc.
Some lines of brown &
alk - $\frac{1}{2}$ way up bank
in some cases, - again
nearly at bottom.

This is Hog creek.
In several places this
creek has cut into a
deposit leaving terraces.



after over and wide,
the creek had filled up

9
to new terrace level.

Left at 10:30 pm. for Mt. Valley

Aug. 27th (Fri.)

Drove out to Main bridge
with Mr. Sniff.

Took photos & collected
plants on sand dunes.
A hot dry wind.

Packer & left at about
midnight for Cedar Rapids
Aug. 28th (Sat.)
Stephen at home, visited
Mother at Haverhill, &
left Cedar Rapids at
10³⁰ PM. for Chicago.

1909.

11

Aug. 28 (Sun.)

Reached Chicago at 6.²⁵ am
& left for Milwaukee at
8 am. Reached M. at 11 am.
Went to Chas. J. Harris for dinner.
Spoke in afternoon. Heard
drinking of religion etc.
controversies, & was warmly
received.

Left at 10³⁰ am. for Chicago
by way of C.W.

Reached Chicago at 11.⁴⁵ am
& put up at the Coy Hotel.

1909

Aug. 30 (Mon)

Left at 6:45 for Dune
Park, Ind.

collected plants on sand near

sept. 1:

Euphorbia
Solidago tenuifolia
Alnus
Cercocarpus
Panicum "dichot"
" (fine)

Oenothera biennis
Rudbeckia hirta
Eragrostis canadensis
Salix humilis ✓

Hypericum punctatum
Cyclopogon
Polygala tenuifolia
Euphorbia corollata

Monarda fistulosa
Asclepias tuberosa

Aristida stramonii
Cnicus altissimus
" *crispus*

Lespedeza capitata
Cypripedium pubescens

Phlox paniculata
Rosa
Panicum virgatum

Euphorbia (fls)

Polygonum

Helianthus scaberrimus

Zephraea ?

Helianthus

Carex ripensis

Panicum scribneri

Scirpus

Asclepias tuberosa

Lilium

Ampelopsis

Elymus

Setaria

Ampelopsis

Panicum (f. v. c.)

Zinnia

Ceanothus

Amelanchier

Lilium

Phlox

13

Helianthus
Asclepias syriaca
Ampelopsis

50 *Pectis*

Heath Varunin

Aster

" *sericeus*

" *negundo* (low)

Oenothera

Solidago (scabra)

Vitis

Cornus

Pectis

Panicum virginicum

Kochia

Lupinus

Erythronium

Erigeron

Campanula

Lactuca

Fragaria

Galea

Aster

Polygala

Eragrostis

Silene

Poa
Ischaemum

Commelina

Carex

Cornus

Aster

" *serotinus*

Erigeron

Helianthus

Verbena

Isis

Desmodium

Panicum

Salix

Quercus

Vitis

Aster

Helianthus

Lactuca

Panicum

Erigeron

Helianthus

Verbena

Isis

Desmodium

The dominant species on some parts of dune is the coarse big grass with hairy sheaths, - *Ammophila*

Plants—

- [illegible]

Shm. triquetrum

Left Chicago at 10 Pm.

~~Copied~~

1909

17

Aug. 31 (Tue.)

Reached Iowa City at 4:30 am.
No back, - R. Benson helped
carry my trunk to Lanning.

Left at 6:30 am. for Norfolk,
without having been able to
get the folks at home - had
to unload between, fix
plants & such.

Reached Mason City again
2 PM.

Went out to sand pit E. of
Lime creek.

Best Winter pit -

Dunk well about 10' ft
below water - sand & gravel
all the way - N. of RR.

Geo. Gable has pit S. of
trunk.

S. of track & E. all cement
Hawkeye Cement & Tile Co. (Hawkeye)

In the winter pit last
winter a bone was found -
21 in long, & 2 in diam.
A man also said a bone
(human?) had been found
in Galois pit.

The winter pit faces
S. & S.E. and is
about 12⁺ ft of
beautifully cross-bedded
sand & fine gravelly
silt occasionally bands
and lenses of heavy
silt - rather dense.

The fine gravel chiefly
contains pieces of
limestone from Cox
I found a bone in
sand & one in silt
Some are broken, but
most entire. I found
these shells mostly at

about 6 ft. above base.
The measure of bank is
from water in pit.

From E. side I could see
top of dune. This is heavy
sandy silt, more or less rusty,
especially where it joins
gravel & sand. Fine
silt rather not sharp.
This upper layer is 2-3 ft.
The top of sand is just
about on level with
the N. & S. RR. to the
south.

The winter pit is just N. of
RR & 12 or 15 rods N. of
wagon way, & half a
dozen rods N. of one
mile post along RR.

It is probably 180 ft long.
These pits are not on
general plain.

Left at 6:05 PM with
Joe for Clear Lake, to
meet Anna & Frank.

Spent night in cottage

Sep. 1 - Wed. 1909

A cloudy, disagreeable
day. Collected the oak
acorns & took photos
of beach & Lake (photos
124)

In afternoon went
across Lake to W. end
with Hugh Shepherd in
Mark White's launch
"Hobo" to inspect
water plants in
vicinity of Clear Lake
Game & Protection area.

Found the most
common of all to be
Myriophyllum.

Most common plants in
W. end of lake:

Myriophyllum (predominant)

Potamogeton pectinatus

" "

Ceratophyllum

Najas etc.

Returned at nearly dark
& retired.

I was somewhat sick
with malaise from, etc.
and had a bad night of
it.

Harry Montgomery & Lil
occupies cottage next to
Joe's. Saw Alice Yeoman.

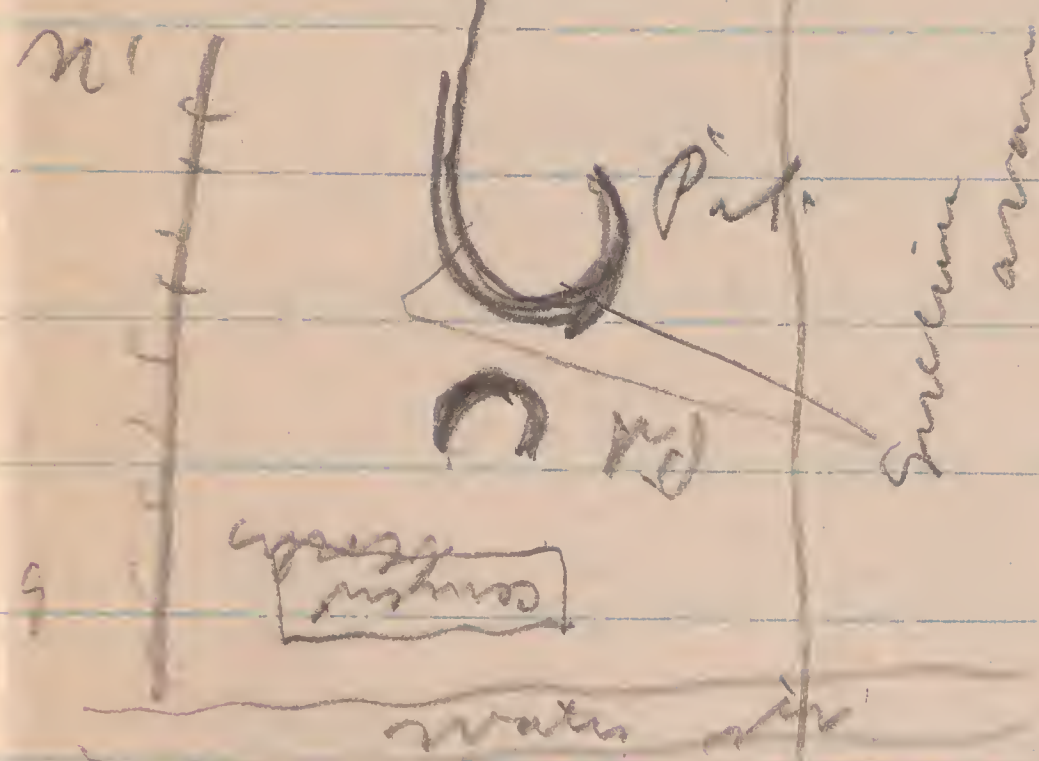
Sep. 2 - 1909 (Thu.)

Left with Anna & Frank
for Mann Co. It was
raining & disagreeable.
At 1:45 Anna & Frank
left for home, & I
returned & stayed in
dorm at Joe's.

Rained all day,
and I was still all
in.

Sep. 3 - 1909

Visited the Catlin sand pit
N. of Water street & just E. of
the Central RR track.



The 8 mile pit is smaller &
not now in use. It is here
that part of Mastodon jaw
with 3 or 4 teeth was found
about 20 yrs. ago. It
was sent to Historical Room
at Des Moines (sent by
H. D. Smith)

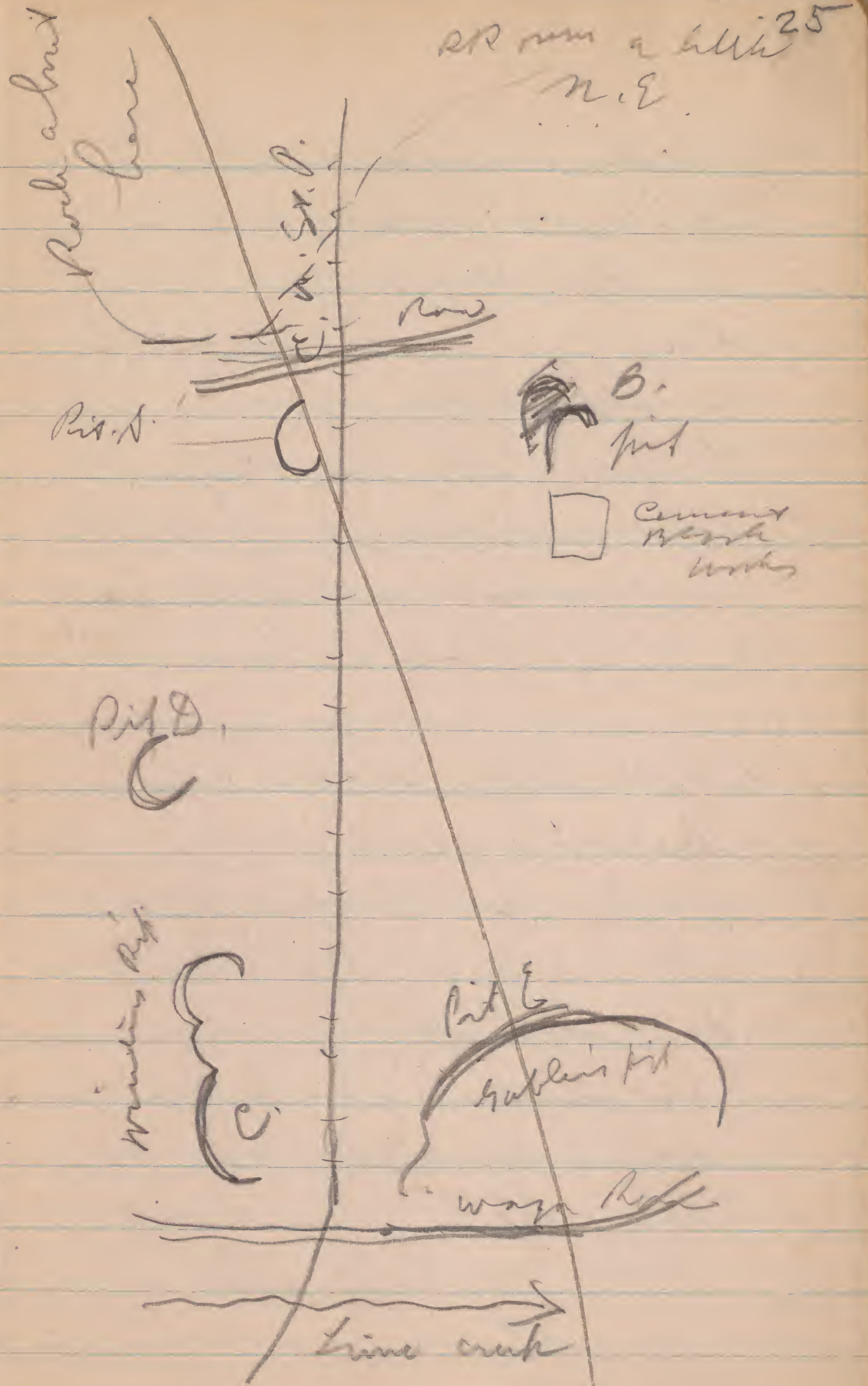
The N pit shows about
8-10 ft of gravel & sand,
mostly gravel. Some cross

bedding is visible but
it is not as clean as
in Winger pit.

Found Succinea areas in
the north pit in fine
gravel - 7 specimens.

These pits are on a bench
nearly on a level with general
prairie + the Lime creek
alluvial valley is only
2 or 3 rods to the east.
The N. part of the
N. pit shows bands of
silt. Otherwise mostly
fine gravel.

It shows upward silt
soil, no definite lines.



Pit A. Shows 6-7 ft.

5-6 ft coarse gravel

& small boulders

above, not clearly

cross-bedded, &

below that, sharply

defining, 1-3 ft of

fine sand, more or

less cross-bedded.

Visited the Huffman

Pit - B.

It is 12-14 ft. to rock, &

all sand or gravel.

The upper layer, 2-4 ft

is again coarse gravel

packed in. Below

is sand, cross-bedded

with streaks of fine

gravel.

Took photos on (3/4 mi. &

N. - Salt)

water appears everywhere

in lower part - in this

Pit say - 6 or 8 ft of top

Pit C

At Winters' pit noticed

bands with MnO₂. There

seems to be no coarse gravel

on top here.

Photo 6 - S. pit - looking W.

" 14 - same.

The central black band is

MnO₂

Photo I - Taken a little farther

N. shows layer of gravel

& cross-bedding.

Photo 15 - same

Photo 16 - Looking at pit

from N. Shows plain

Pit E.

Gabler's pit is located E of
RR & N. of road.

Photo 19 shows a N.E.
view of pit from road.

The Gabler pit shows
cross-bedding, & what is
part is somewhat more
gravelly, but less
humorous than in
Huffman pit (B).

There are MnO₂ bands
in the Gabler pit.

Photo 20 shows part
of Gabler pit - cross-bedding,
MnO₂ layers, etc.

Found one area in
fine gravel as before.

Joe Pickens up a bone in
bottom of Gabler pit
which may belong in
gravel. It is said
that bones have

been found in this
pit.

Sep 4 Sat. 1909

Grand pit

Drove W. from Miami City
took photo of Lombard
(41 & 42) on road going
straight W. & a little
W. of Emory (or nearly
opposite).

Drove to row S. &

W. row

Lombard

took picture of my old
time Lombard

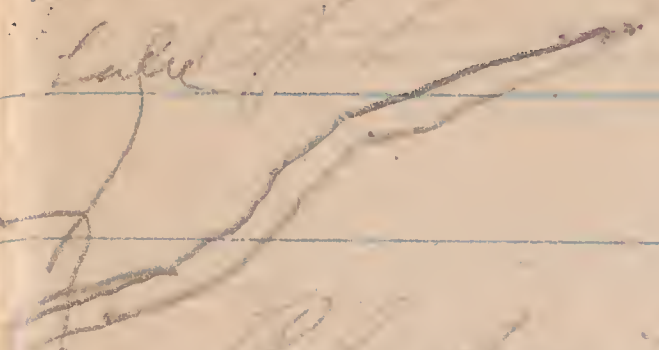
S. row nearly done

W. row fresh - from

stumps. Photos 5 & 6

photos 3 & 4

Clear Lake



Photos 3 & 4 show places out
cottonwood with a few dead
Lombard

Found gravel pit on W. side of
road & west of road.

It is like there at Miami City.

Sandy reddish soil

2-3 ft. with pebbles, especially
below.

Time may
moderately
disturbed.

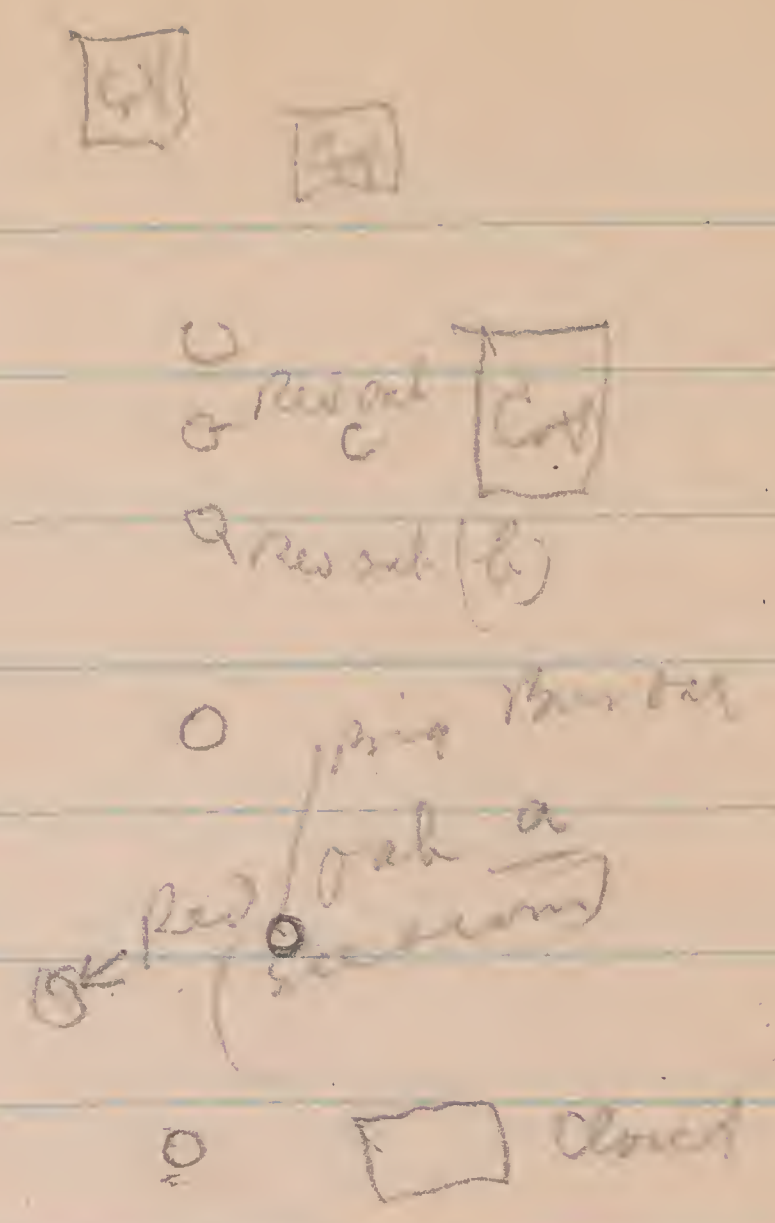
Pebbly & with small
boulders - 3-4 ft.

4 ft.

crossed row
with boulders

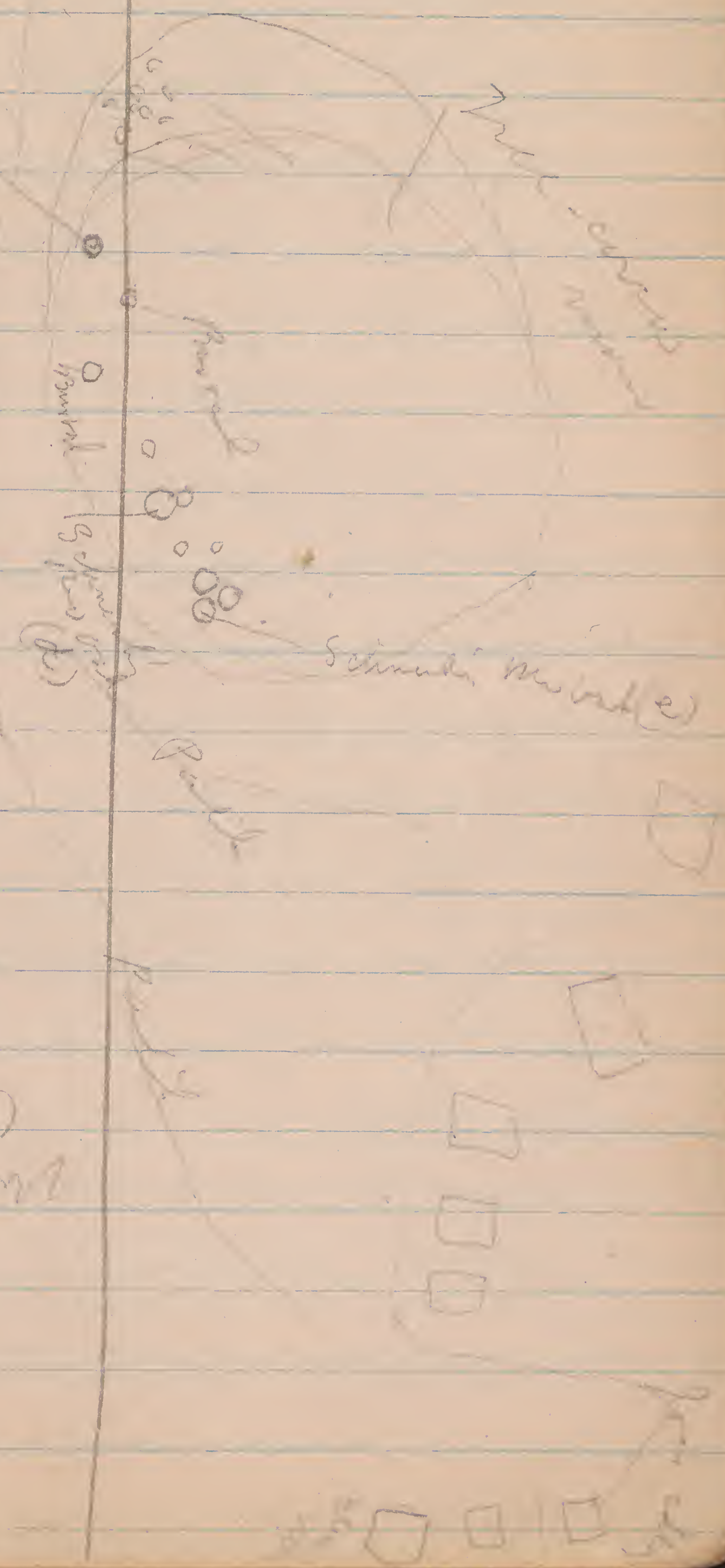
At bottom a red sand
shows, below this is
more sand, pebbles, etc.

Street
 Fair village



Red oak (C) was in from which
 across that corner to the house
 were collected.

Schmidt's Red oak (F)



(Schmidt's Red oak)

Red Oak

Photo 29, 30 are Schuch's
Bulb, d & e.

d

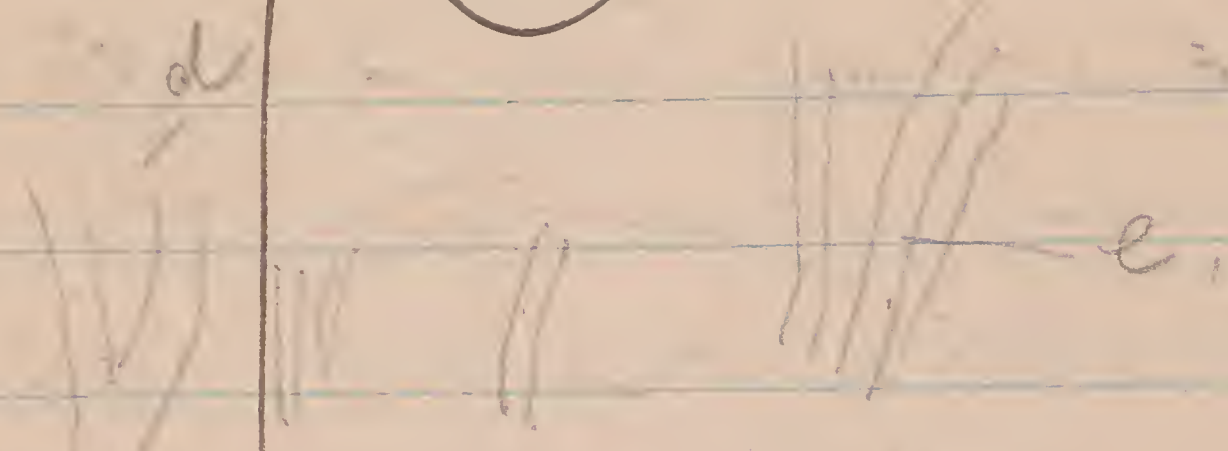


Photo 31, 32
Schuch's work - f.

Photo 33, 34 - bank
of Schuch's Rev oak (f)
(with large acorns)
(f & d.)

Reached Inwood after 9
Took dinner with Kate &
the kids.

Joe bought bike, or
rather checked it to
Lamborn, & I saw him
for a moment at the
depot.

Left at 2:30 pm. & met
Dr. Bemis (of 1909) on
train. Lives at Spencer
but will be in Des
Moines for a year.

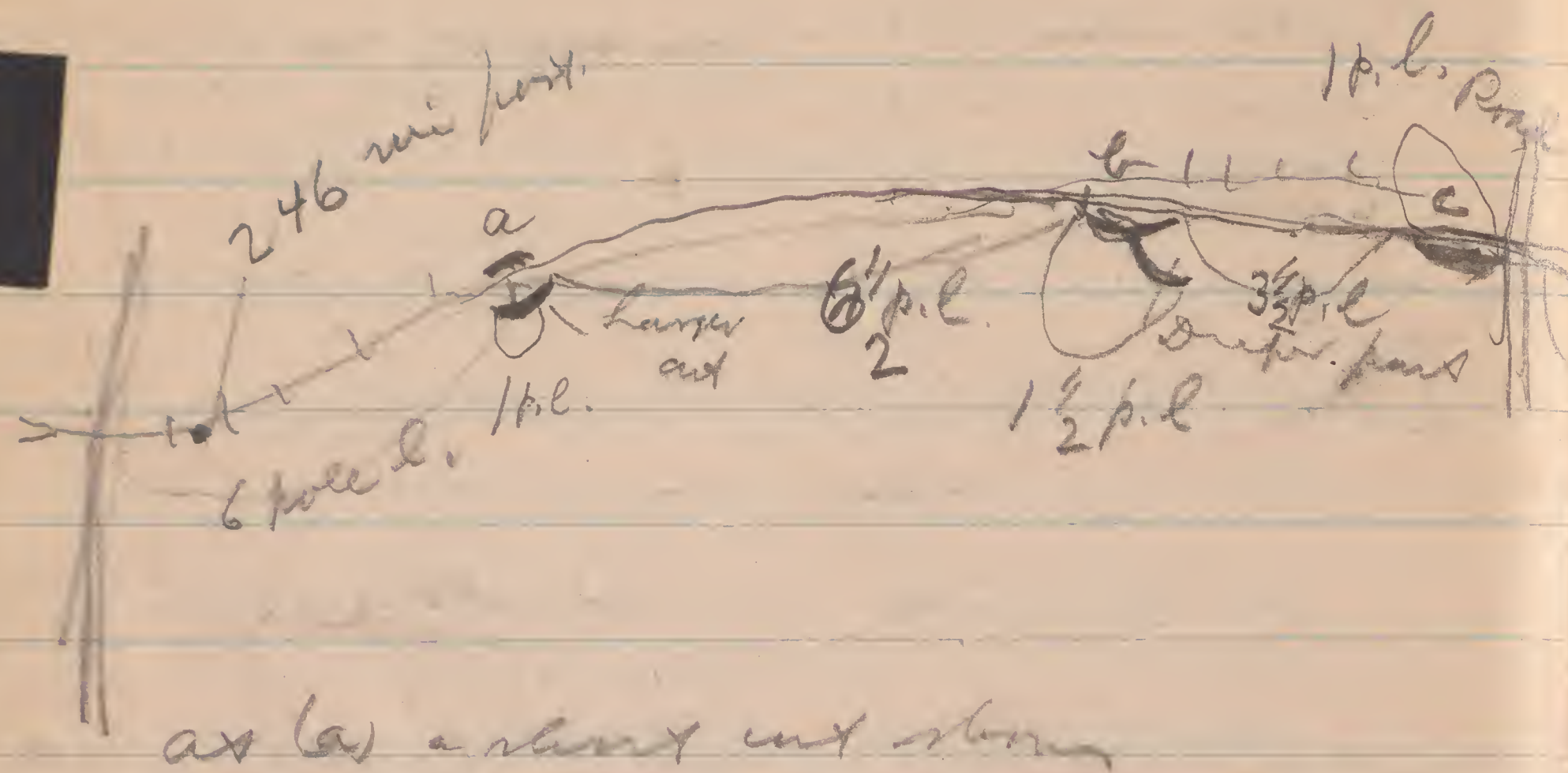
Reached Inwood after
9 pm. & put up at
Inwood House.

Sep. 5 - (Sunday), 1909

Day bright, - wind was
cold.

Started along RR. west
Walked out about $2\frac{3}{4}$ mi.
West.

Pole l = 180 ft.



2-3 ft. soil, etc.
6 ft. + granular belt
sandy etc.

6 ft. values

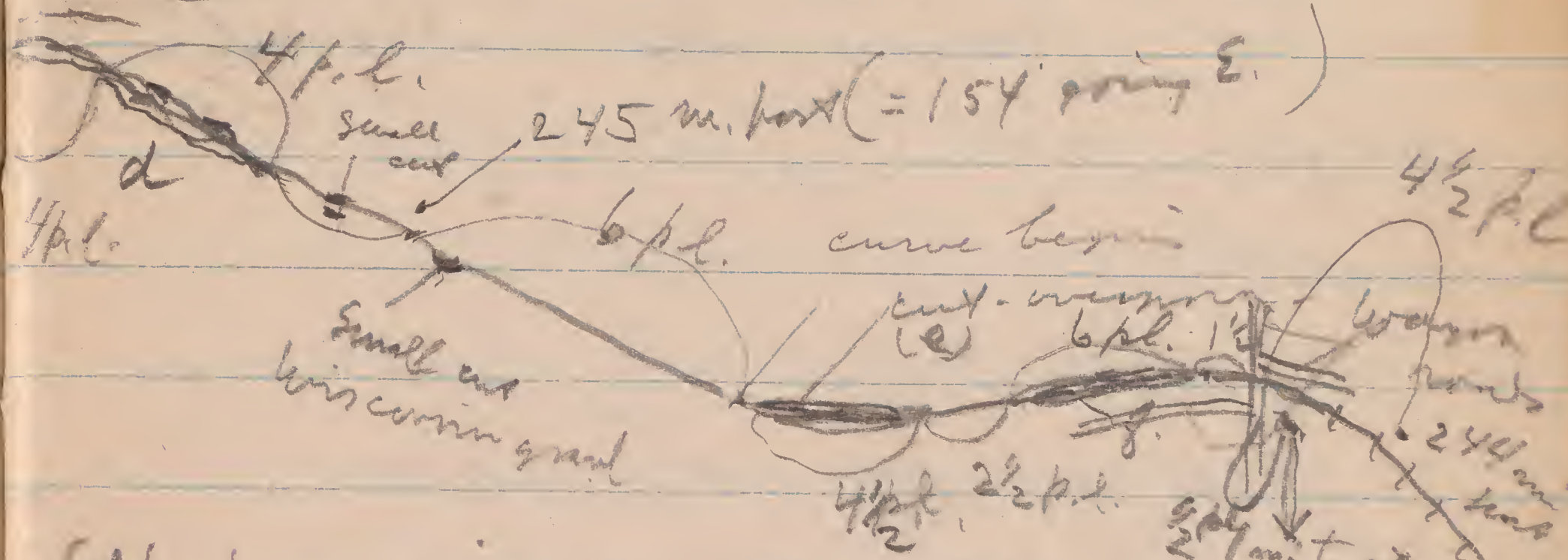
Middle belt shows stratification
(horizontally) lines of sand
& fine sand, etc. (about
loam-like)

Red barbers chert,
esp. in granular belt.

This is evidently Wisconsin

Cut B is irregular & shows 6-8 ft of
dark Kansan below. Below 15 ft
= Wisconsin, with many small red barbers
& with pebbles. Could not trace here.

Cut (C) is same as upper part of (b).



(d) is an irregular cut, mostly Wisconsin,
but showing signs of sand and silt
as in (a). Old mine like
upper part of (b).

Cut (e) is mostly Wisconsin, but
shows heavy top covering, 2
ft or more thick (see
sample). This cut is lower,
shows no Wisconsin.

Took sample 6 ft from top
at E end, N. side
also nodules.

f. is low Wisconsin cut, also in
loam.

all the hills along cut
a, b, c, are Wisconsin to
surface, & *Solidago rigida*
is the most common type
Photo 33 & 34 - Snap - *Solidago*
rigida on hill above cut (b)
Antennaria slightly very common

The change from Wisconsin
to Kansan - loess from
mud cut d cut e is very
abrupt.

It is interesting to note
that the rougher Wisconsin
surfaces W. are seldom
cultivated, but are used as
pasture & are covered with
Solidago rigida, while
the Kansan loess is all
under cultivation, with
fine crops.

Left for Canton at 12:45

Took lunch at Canton - RR. depot.

Noticed that there is still
considerable timber opposite
Canton.

The ridges on Iowa
side are certainly
Wisconsin moraine. Gravel
& boulders appear on surface.
The moraine's part stands
higher than general plateau
S. The latter runs along
nearly on a level & the
bluffs are evidently
formed by cutting.

A fair view S. E. at any
great gravel beds, stratified
& cross-bedded, & having
aspect of 'Mason City
gravels'. The C. M. & St. P.
is taking out great quantities
of gravel. These gravel

form terraces along river.
They are evidently Wisconsin
gravel terraces.

The Big Sioux Valley
is mostly mile wide, &
surrounds plenty of
dirt for loess.

There are now numerous
sand & gravel bars.

Reached Akron at
3:30 pm & put up at the
New Kendall Hotel.

Expected to run out, but
it commenced to rain, &
continued a fine drizzle
all night.

Sept. 6 (Mon.)

Still raining, with promise
of an all day of it.

This summer has certainly been
a hoodoo.

R. A. Smith is editor of
the Register Tribune.
Called at his office.

He said that in N.W. 1/4 Sec. 33

93-48-5 - on the

Severin Jones farm, south
of the river was found.

Prof. Lorne Snyler was Principal
of schools when teeth were
found - His father is

Rev. Robert Snyler
Sioux City, Ia.

(He was at Sibley since)

The elephant was found on the
Severin farm -

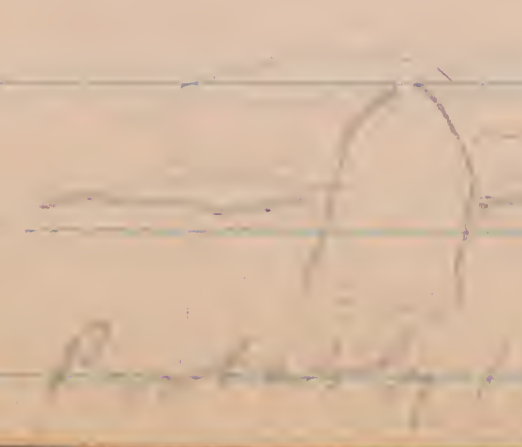
Prof. O. J. Smith
 Pollock, So. Dak.
 was present at time
 Jensen teeth were found.

Miss Maggie Rundert
 Akron, Ia. -

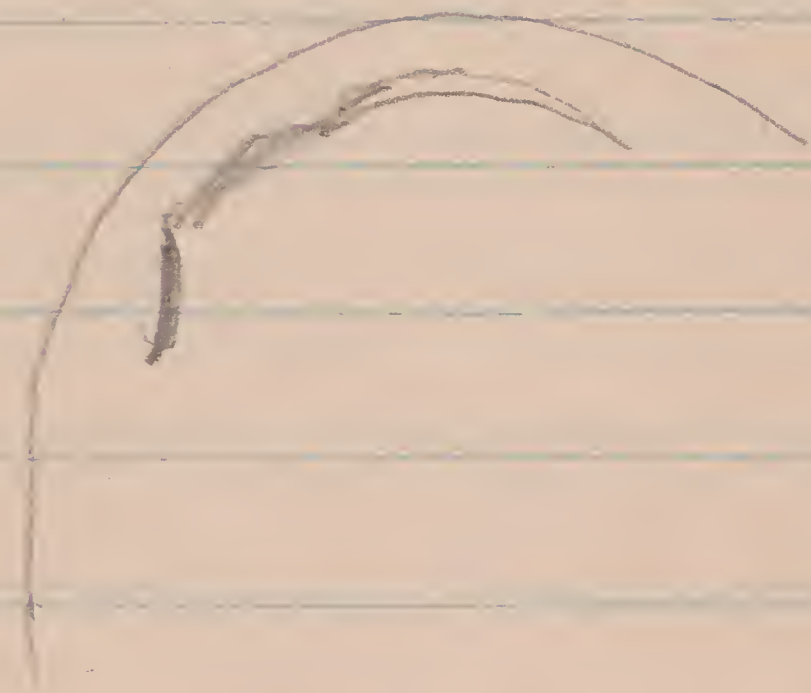
Teacher in school who gave
 me information. Found
 of curios, etc.
 Went N along RR track
 to bluff.
 Locus is probably 15 ft
 or more deep, yellow (brown)
 and in its lower half $\frac{2}{3}$
 with streaks & bands
 of sand (fine) alternating
 with the clay. (see sample)

The upper part shows contour
 laminations with lines of
 iron following contour.
 The lower runs down
 nearly to shore, being
 separated from it by
 probably a foot of red dirt
 sand, with mixture of dark
 pebbles - all evidently
 Kansan.

On W side, where bank
 runs S. from RR, the
 locus is about 12 ft deep,
 & lower part is mainly all
 laminated (dune) sand.
 The red sand layer is about
 1 1/2 ft, & has lines of
 contours, or projecting
 into into sand, & back to


 Lam. sand.
 Red sand.
 Probably 12 ft of white exposed

Found Pyramides abundant
everywhere, abundant, common, on
shale banks.



□
mgs

(Yes, only about 5 ft below top
of hill or well) 45

Just at middle of N. 1/2 of
sec. 32 E. of Chron, 1/2 way
or less down a slope dipping
to S. a cut a foot deep
shows many small nodules
(like those of top nodular
layer generally) & also
some Succinea common.

Took sample, nodules & shells.

Went to Jensen house.

The mastodon remains were
found 20 ft. to sand.
This was red, & contains
mastodon.

all I could get was that
they went through yellow
clay & some dark clay.

Well about 6 or 7 yrs. old.
Made by Butcher, who
lives just across the bridge
in So. Dakota.

Underneath the sand
they struck hardpan.
I saw the two teeth, or
rather fragments of jaw
adhering, in school at
Arlon. Each had 8
pairs of cusps, the last one
or two very small. All
but these last two pairs
were ground down so
that teeth are almost
as flat as elephant
teeth.

The topography in general
vicinity is rolling prairie,
& the well is on a slope toward
west, a possibly $\frac{1}{2}$ way down,
being E. of the house.
The creek bottom begins
just $\frac{1}{2}$ mile north.
There really isn't much
of a creek bottom.

The well is probably 36⁴⁷
ft or more above creek valley.
The well is about 140 paces
S. of road & 300 paces E. of
W. line of sec.
The well is less covered.

Mr. ^{Frank} Seavels, just N. of
Janson place made well
recently & passed through
following:

Surface dark brown. 3-4 ft

12-13 ft yellow clay.

1-2 ft blue joint clay
with boulders
sand about 2 ft
7-8 ft gravel — struck water
into this

went 52 ft in all —
not in ^{bedrock} shale.

Mr. Seale's place (well)
is several feet lower
than the fence well, or
nearer to road, - probably
by way.

Photos 7 & 8

Looking E across Seale's
well (see pump) & towards
Jensen's grove.

Jensen's grove  windmill

I have camera set up
a little N. of pump.

On lens taken from well
I saw fragments of
Peracrinus

In the ceiling 7 ft deep,
the lower parts rest on
gravel - a foot or two, &
then come sand - and
big blocks of stone with
grooves.

There are *Sphacina* shells
in stuff thrown out.

The lower is lower than
well.

The stuff outside was mixed,
but *Sphacina* probably
came from below.

Photos 29 & 30 - looking nearly
E. from 1/2 mi. corner towards
Seale's new house & Jensen's
grove beyond.

Shells will be on
lower slopes - not on
highest parts!

Photos 25 & 26 - level
W-

Bluff
Tooth along
very long

top of country here

All along row top
nodular lower alphon.

cut 2
Spec. 4 extends down hill
to 5. & shows about 5
ft. within 2 or 3 ft
very nodular, (small)
& lower part shows
streaks of sand as in
cut 1.

Cut 3 is on slope up to
Smith, shows nodular
layer, & more solid
green, sandy streaked
only on lower slope.

This cut is in same ridge as
cut (1).

Remained cloudy all day.

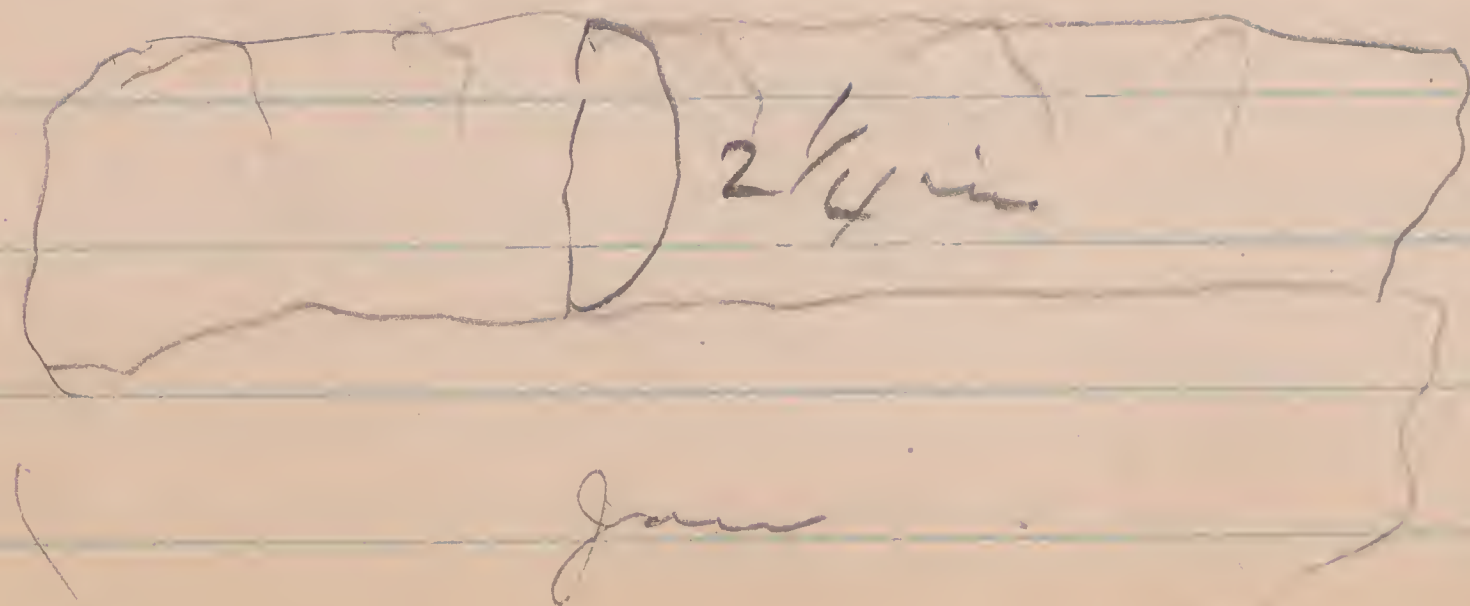
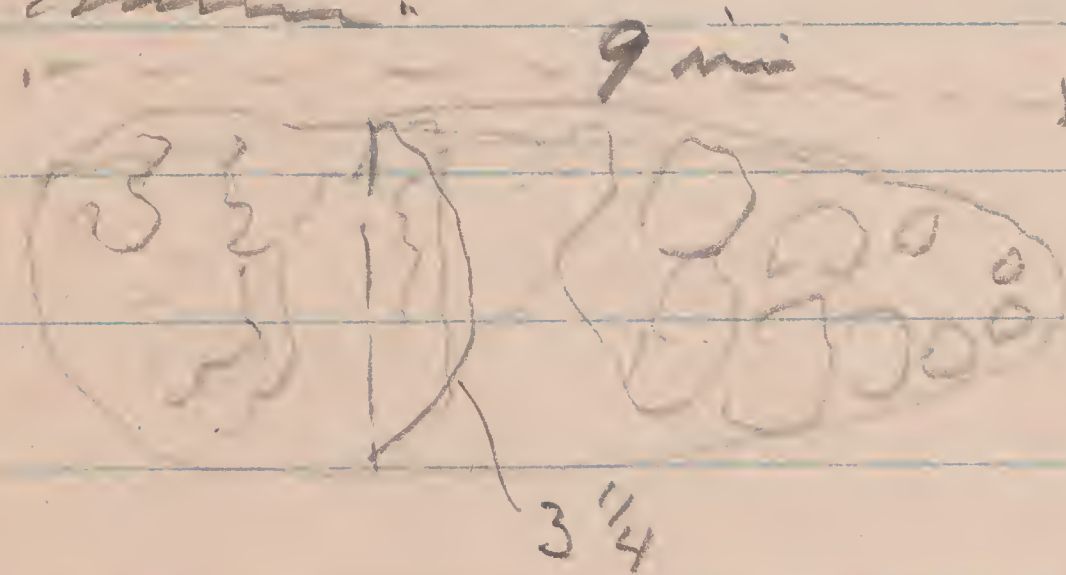
Sept. 7, (Fues.)

Misty in morning, but cleared.

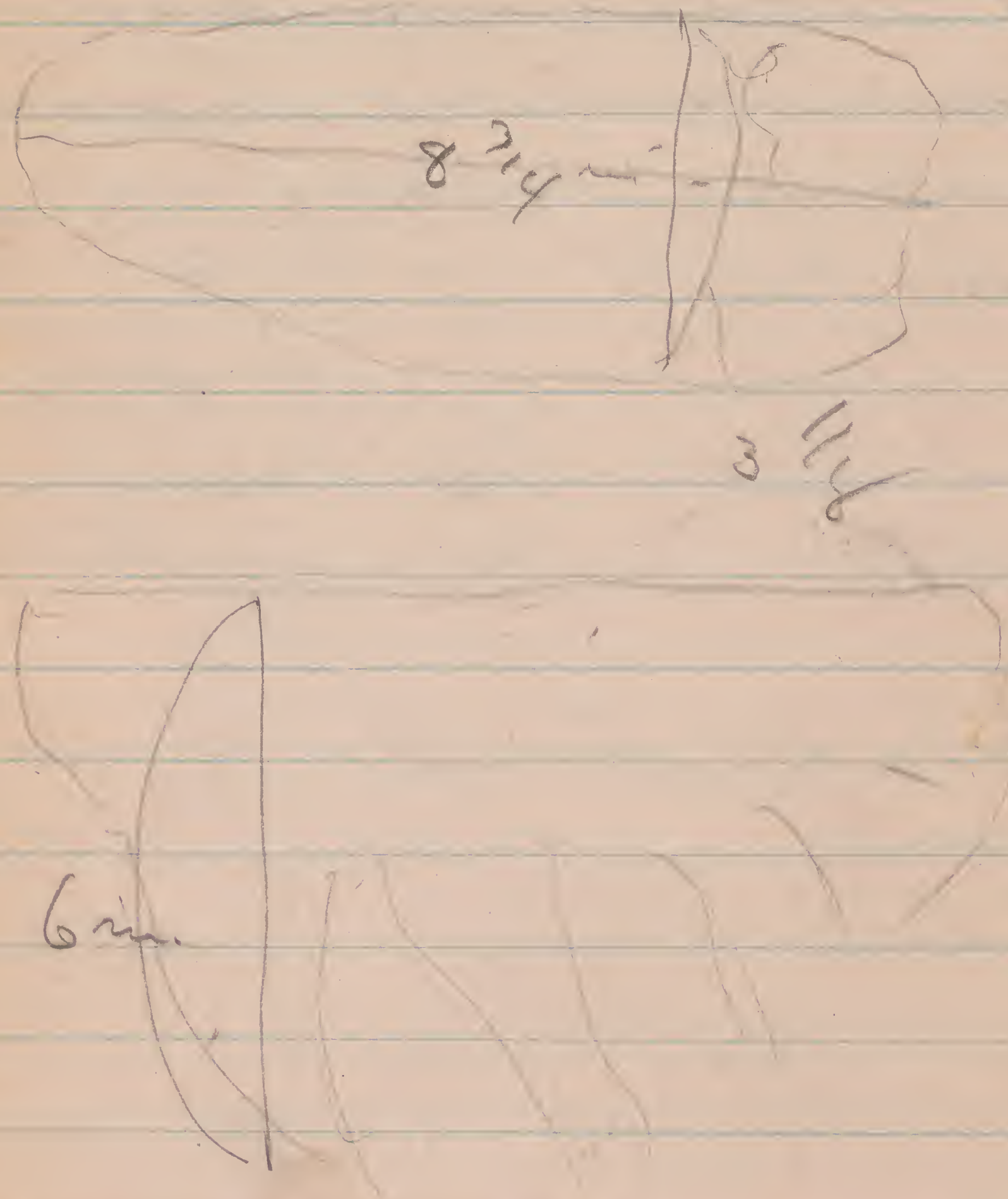
Went to schoolhouse and
took photos of Tooth.

Photos 15 & 16 - Top view of
Tooth (1) - the one with
fragments of jaw.

Photos H & D - side view of
same.

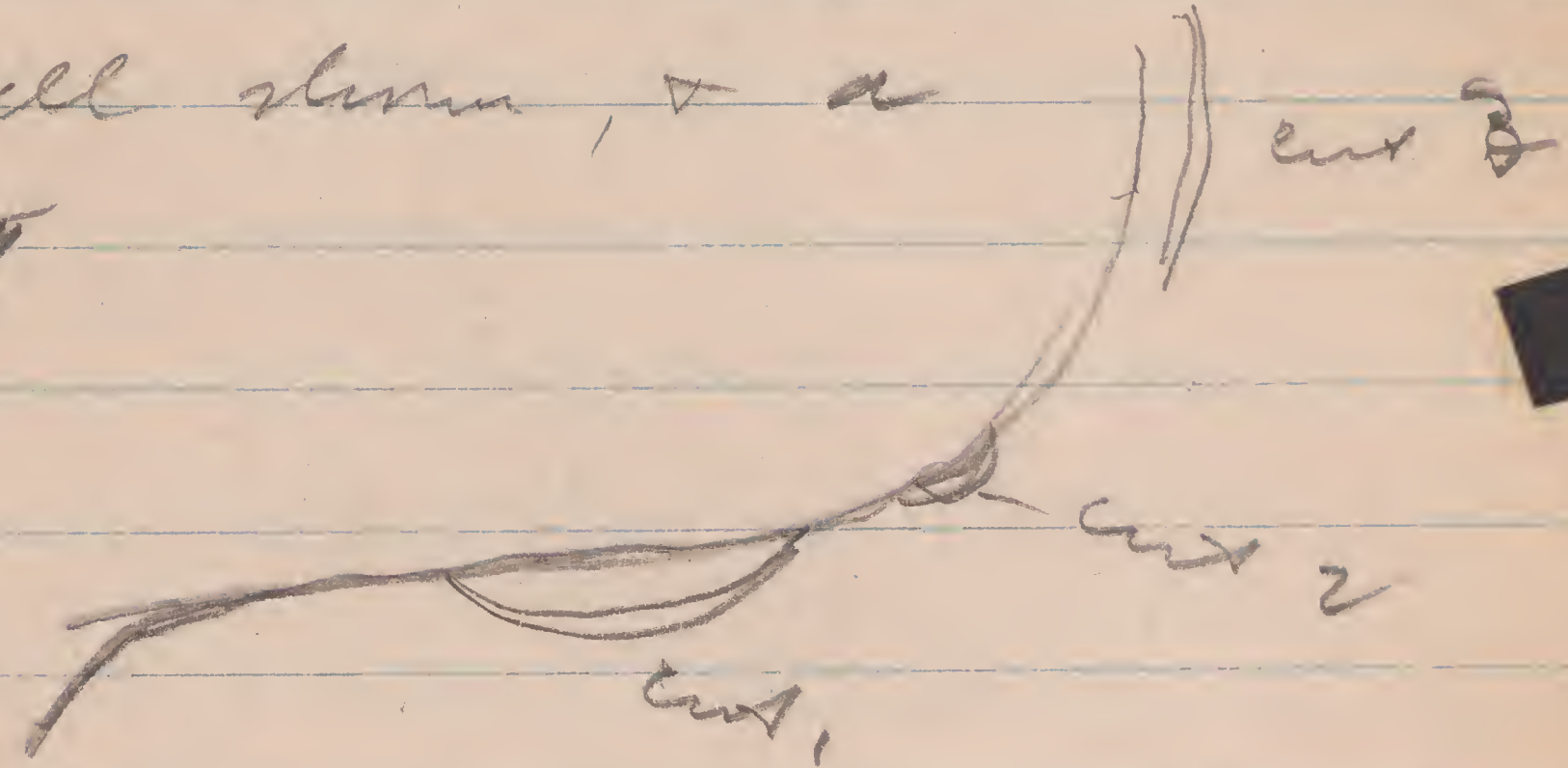


Tooth (2)
 Photo (4) x m top view
 " 9 x 100 - side view.

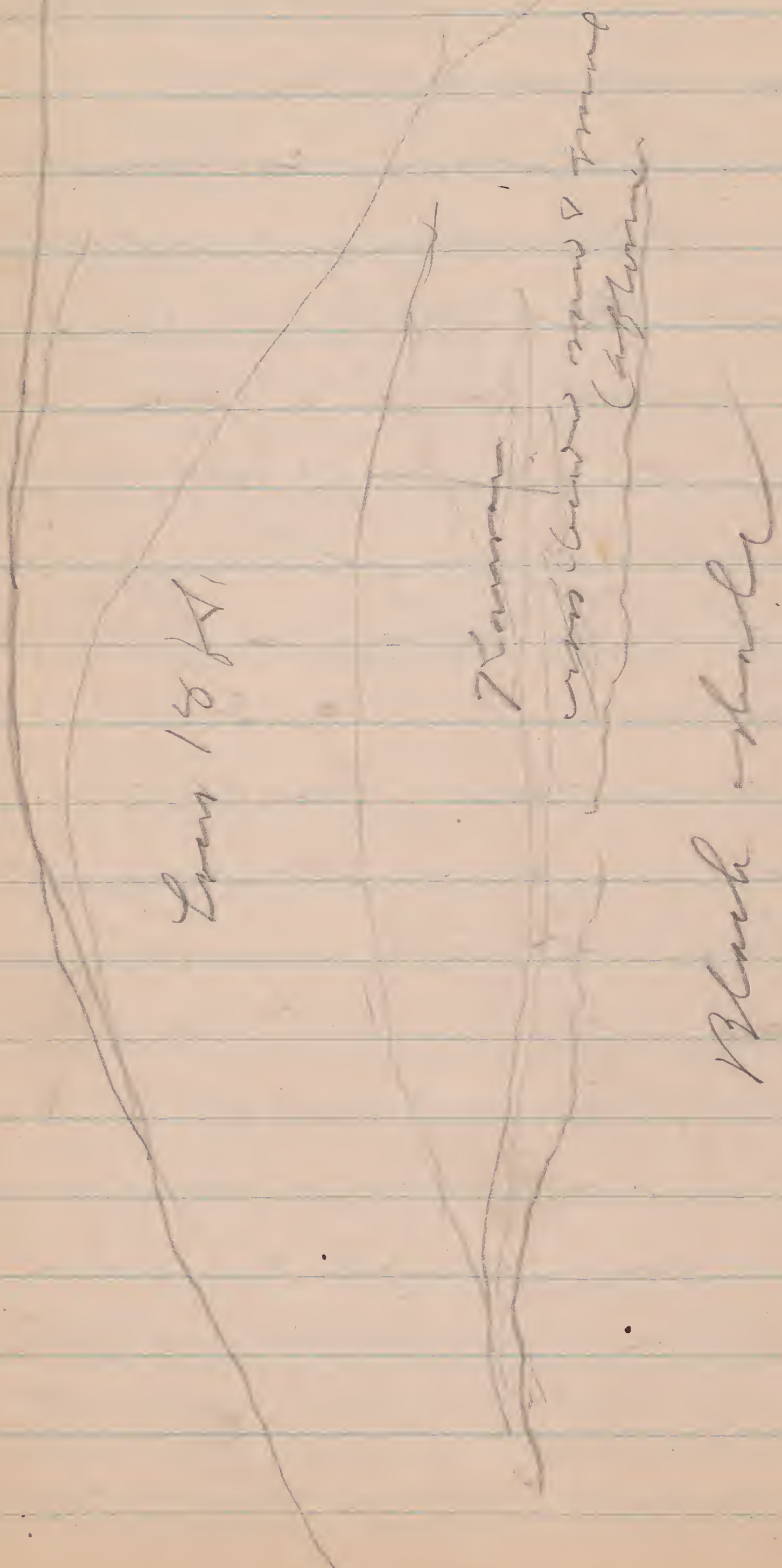


Cone F. Single is from
 principal

Left for Chatsworth at
 11:40 am. Started about
 for bluff 2 mi N.
 of Chatsworth. There
 are two large exposures
 well shown, & a



This is overgrown (cut 2)
 cut 1-



The loam is brownish yellow,
without shells, & with very
few small nodules.

It is sandier composed
In its lower part it shows
for 2 or 3 ft a mixture
of sand bands & loam bands
as at above, but not
so thick.

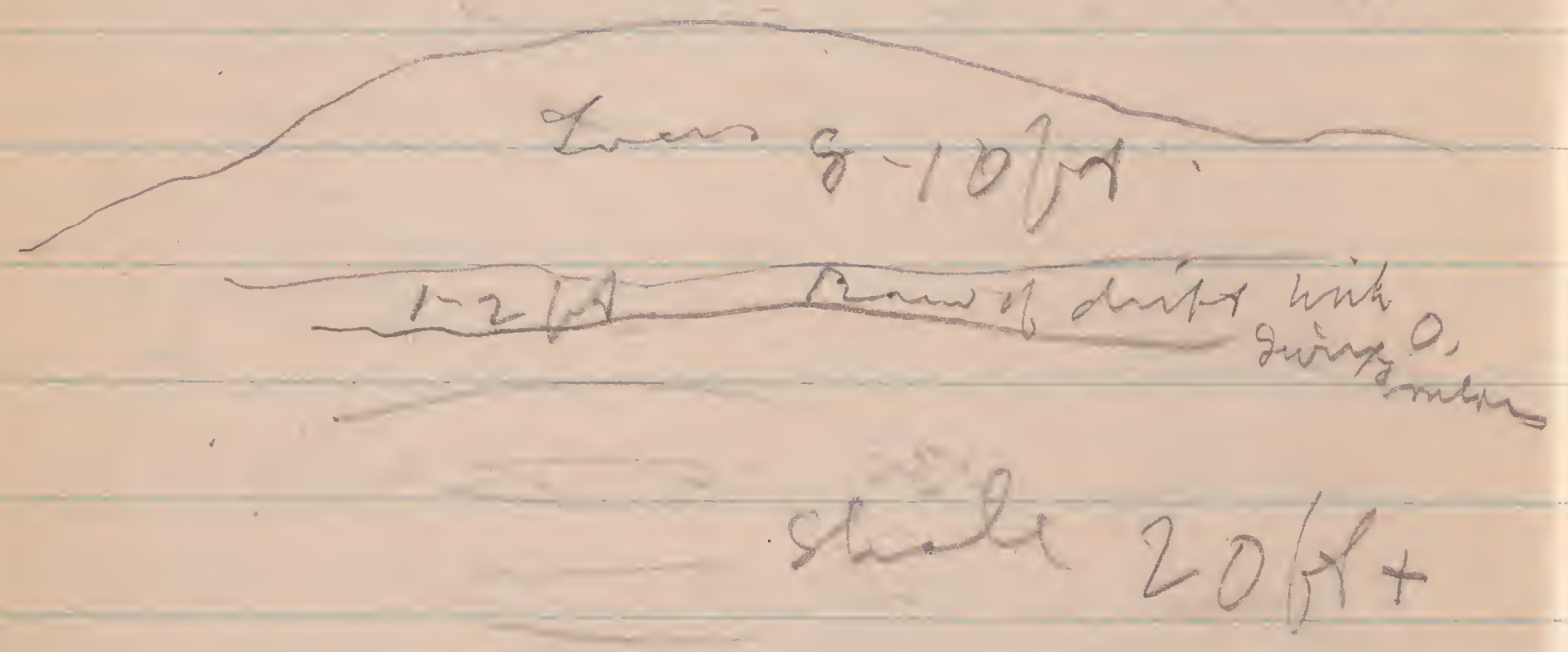
The line between loam &
Kamm is sandy.

The upper part of
Kamm is mostly gray
clay, bluish, with
few pebbles. Below is
like typical western Kamm
It is separated from the
lower gravel & sand by
a strongly oxidized sharp
band, about 1-2 ft thick
& below this is black
shale.

rock sample of loam
15 ft from top & sample
of Kewan 1 1/2 ft below
Loam.

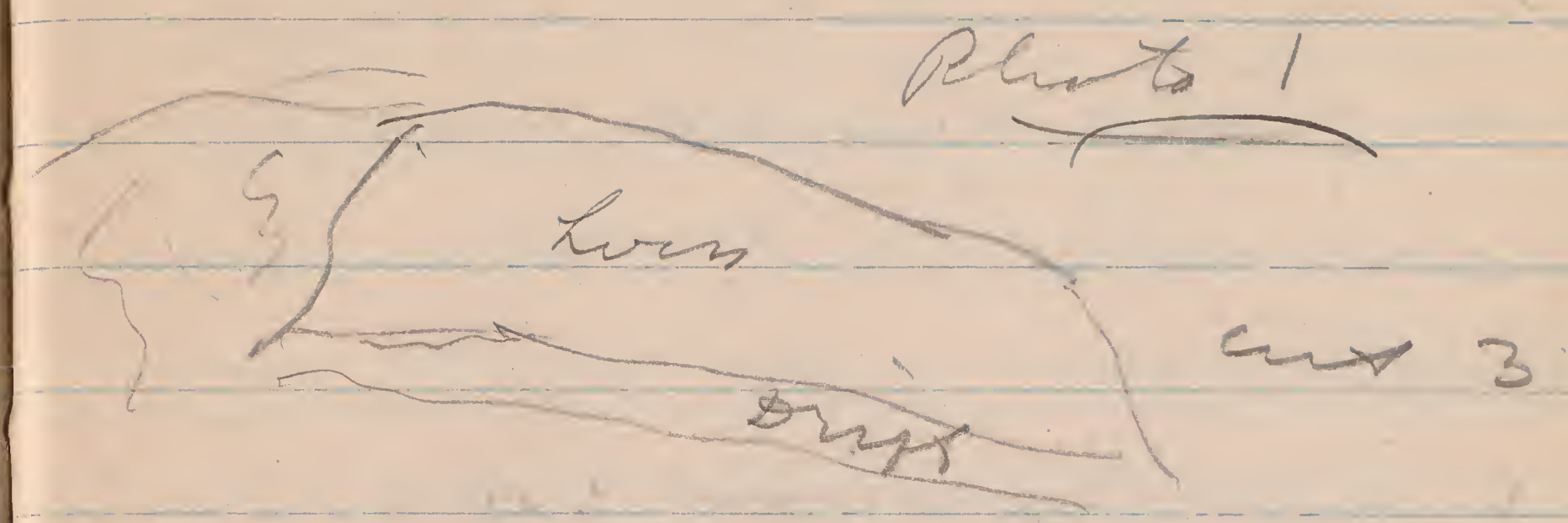
cut (2) is similar, but
loam not so thick.

cut 3.



at N. end of this cut,
beyond my house,
the whole hill slides
out - there are things
essentially gravel & sand -

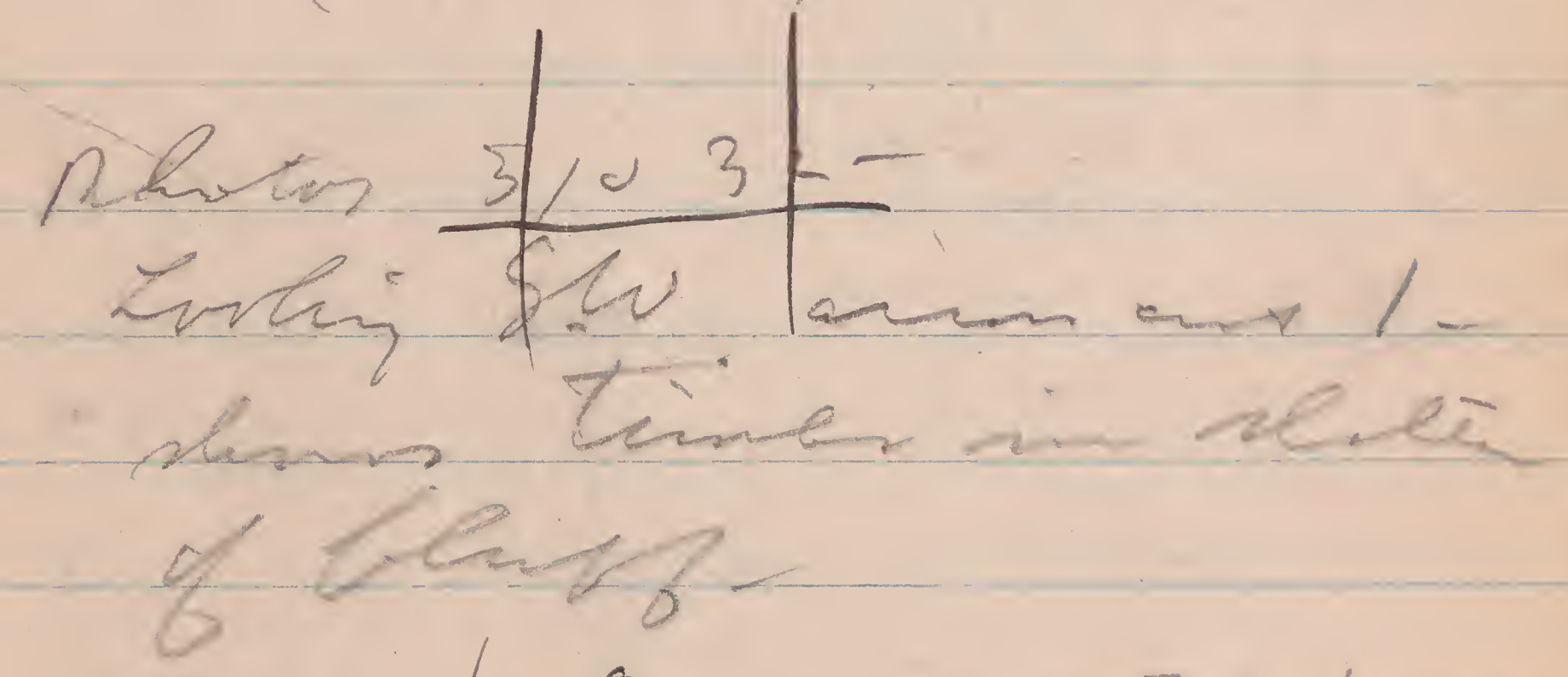
underneath



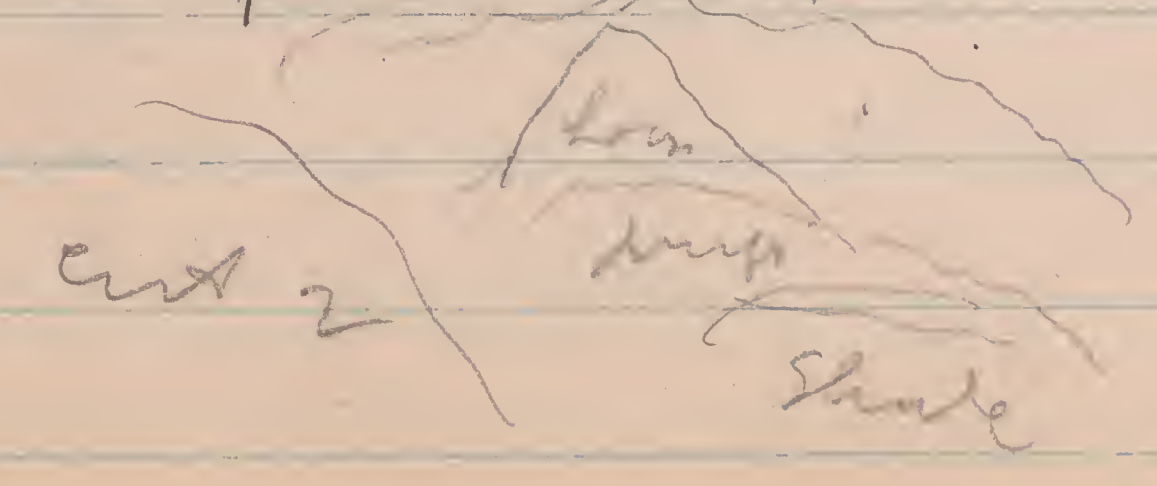
Shale

Photo 2 - cut 3

Looking N.



Photos 3, 4, 5 - cut 2 & 1



Left for Sioux City
at 2 pm.

The hills below Westfield
become rougher, more
peaks -

To Westfield they form
a Kansan tableland.

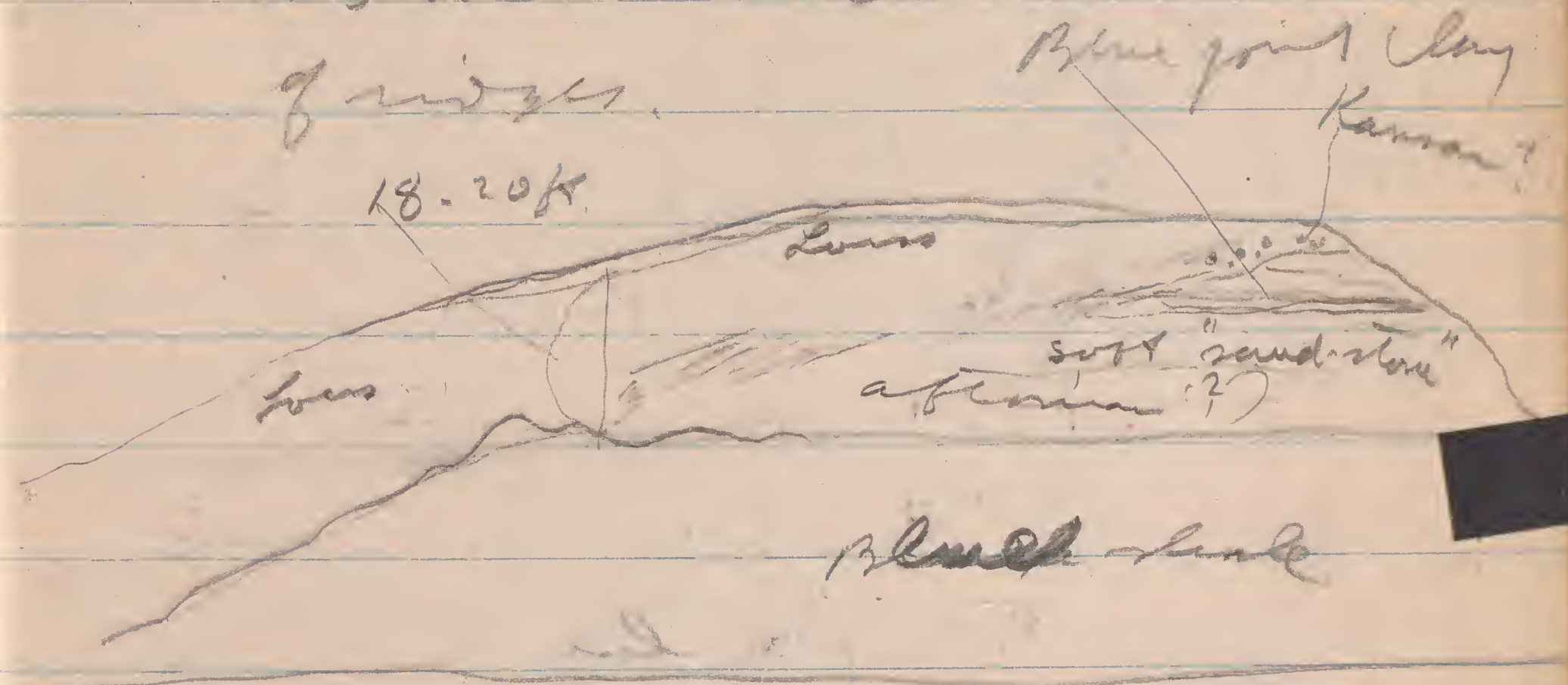
Put up at West Hotel in
Sioux City.

Met Mr White, a brother of
Senator White, who practices
law(?) at the Grove. Had
urgent invitation from him to visit
also met Dr. J. Donahue, physician
of West, who is one of my
old academy boys.

Sept. 8 (Wed) 1909

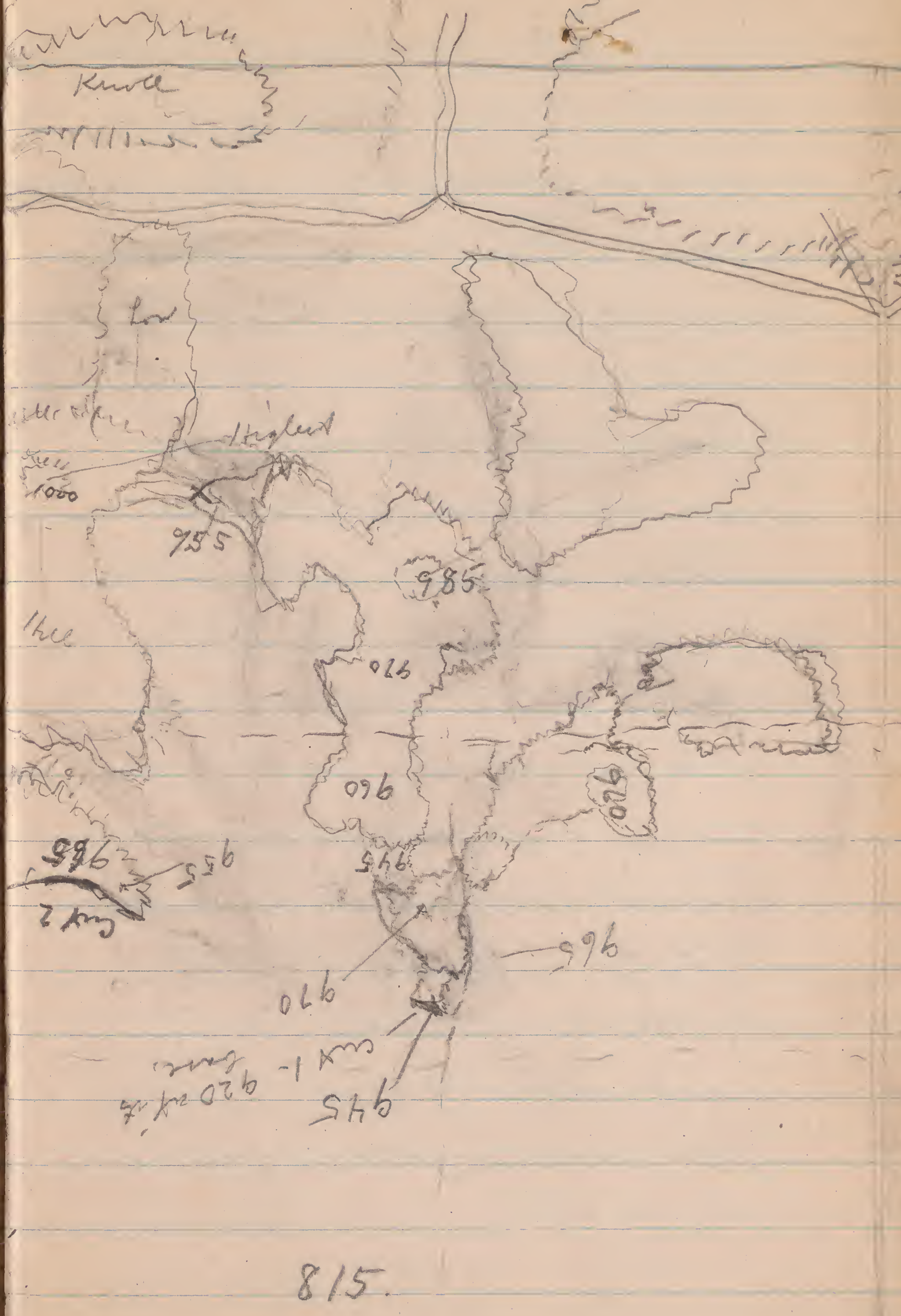
Arranged materials, bought
plates & loaded plate holder,
put away bike, and at 10¹⁵
am left for Sargent's Bluff.
A cloudy windy day.

cut 4 in S.E. - most cut - all the
cuts mean to be at ends
of ridges.



The afternoon (?) is tilted to SE,
pushed up. It seems to be
silty above, and sandier
below. The sand is pale yellow, streaks
with iron.
The loess is yellow.

Along along top of black shale
is a very black line which looks like MnO₂.



S. line no. 29

Row S, line no. 30

Cut 1 is through loess - lighter
& not laminated above, more
compact, brownish, & laminated
below. Fossils all through,
few small nodules, especially
above.

about 20 ft. exposed.
Large number of fossils
scattered all through, but
more abundant upward.
Nothing but loess exposed
in this cut.

Bottom about 815

Cut 2 shows 12 ft
of rather coarse sand,
cross-bedded & with a
few small conchoidal
glauco this is streaked
(near top) with MnO₂.
above it is an
irregular layer of

Loess - but scarcely
reddish - it reaches
probably 10 ft, & its
upper part has large
nodules of lime.
Above this the gray till
runs to sides of loess
near top -

The base of this cut is
890 ft.

See sample of joint clay
few large boulders of Sioux Q.
in afternoon

This sand pit has been
worked for years, & they
have not reached bottom.
No coarse gravel.
No bones or teeth.

cut 2

shut down
windy side

rimy

garnet clay

nodules

nodules

valley

valley

rock bluffs 778

The garnet clay is
below & is very limy!

white pebbly & sandy

Foot of hill at cut 2 815

Top of loose of rock (mass?) 865

Loose usually stuff like

in cut 4

Top of hill = 965

Photos 0/1/2 - looking SE.

from above cut 2 toward

cut 1

cut 1

Photos 2/2/2 - Looking N.

from about cut 2 - toward

highest point

Photo 9 - Looking W. of N.

from same pt.

Timber in structure valley

Cut 3 shows reddish
Laveland for 12 or
15 ft. with large
nodules in its lower
part. It is probably below
the loess shown in
cut proper, but
the hill above is
loess.
The reading at base
is 895.

Top of cut 4 = 885

Top of sandstone = 870 in cut 4
at S E end.

Top of shale = 840 +

Bottom just above cut 4
= 815

Bottom of pit is about 810

Top shale in cut 5 = 855

" sandstone " " = 870

Cut 5 shows only shale &
sandstone, but hill
above is capped with
loess.

Photo 10 = 1 to 1 1/2 in. then
again - field.

Cut 6 - shows shale below,
then white sandstone, &
above at 895 ft. there
is a shelf cut of loess -
The loess cut above it
is about 15 ft. (The hill
comes close to where RR &
wagon road intersect - very
flat in not quite correct.
The loess has a few small
nodules & no shells.

This upper loess is light yellow, soft & crumbly easily.

The lower part of the loess, below the shelf, is distinctly laminated.

The loess extends down to about 875 ft.

Under this I saw at least 3 ft of blue joint clay (Kansan) into which even bones through a foot or two of reddish gravelly (Pomeroy) stuff.

This blue joint clay is same as in cut 4?

The dark shale begins at about 870 ft.

Then under is there is a pocket of sand, & then more dark shale.

Base of cut = 830
RR = 825

There is distinct shale above sand stone. This is finely laminated, and at first I thought it was pre-Kansan, but it is clear shale.

The barometric readings were very satisfactory, there being little fluctuation.

Found that labourers at Brickyard are Montenegrins. One young man, evidently time-keeper - went to Sioux City with me. He is an intelligent fellow who writes his own language, and whom I could

in part understood. He spoke
with appreciation of his gospodar
Nikola, one of Russia.

He expects to return to Cetyń
after three years. Says English
is hard for him.

His name is Mitar Weljovich
& P.O. in Sargent's Bluff.

He says "S Bogach" in parting.

Spent evening in pressing
plants, etc.

Remained

Sep. 9, (Thurs.) 1909

Went N. beyond Riverside.
Visited Ryder sand pit on the
old John Henney (they call it
Maloney) place.

The pit shows pockets ^{of} sand, over which a couple
of feet or so of joint clay
(gray or bluish) of the
Lowland texture, is folded
& masses above. There is
every indication here of folding.
Above the joint clay the loess
begins quite abruptly, & fully
20 ft. of loess is exposed.
The loess is the ordinary light
yellow loess - no fossils.
Few nodules.

In sand are some silt
plates, etc.
The sand is evidently
Aftonian.

Top of Ryder pit 965
Road opp 975
" at angle West 890

Top of hill above cut
(Indian bones, shell) = 1020
Barren = 28.69.

at (x) top of hill
Bar = 28.68
alt = 1015.

Photo in (looking across from x
to Anderson pits (26)
Photo 19 (same - (27))

N. A. Anderson
Box 156
(North Platte) Sioux City
La.

Will save bones, etc.
Promised little allowance,

Mrs. Anderson has found
the specimens which he
gave me in the three
pits about his place.

He says there is no gravel,
but all sand in his pit,
down to a white "like
limestone", into which latter
he has bored 18 ft.

The teeth, etc., came from
the sand, and are undoubtedly
Aftonian.

When he first opened
pit he had a layer of
sand about 30 ft., but
now in middle pit he
has about 22 ft.

He has found various bones, -
one very large & flat,
evidently scapula of
Pachyderm.

Among pieces received were
claw of Megalonyx
2nd of horn (fragments)
etc

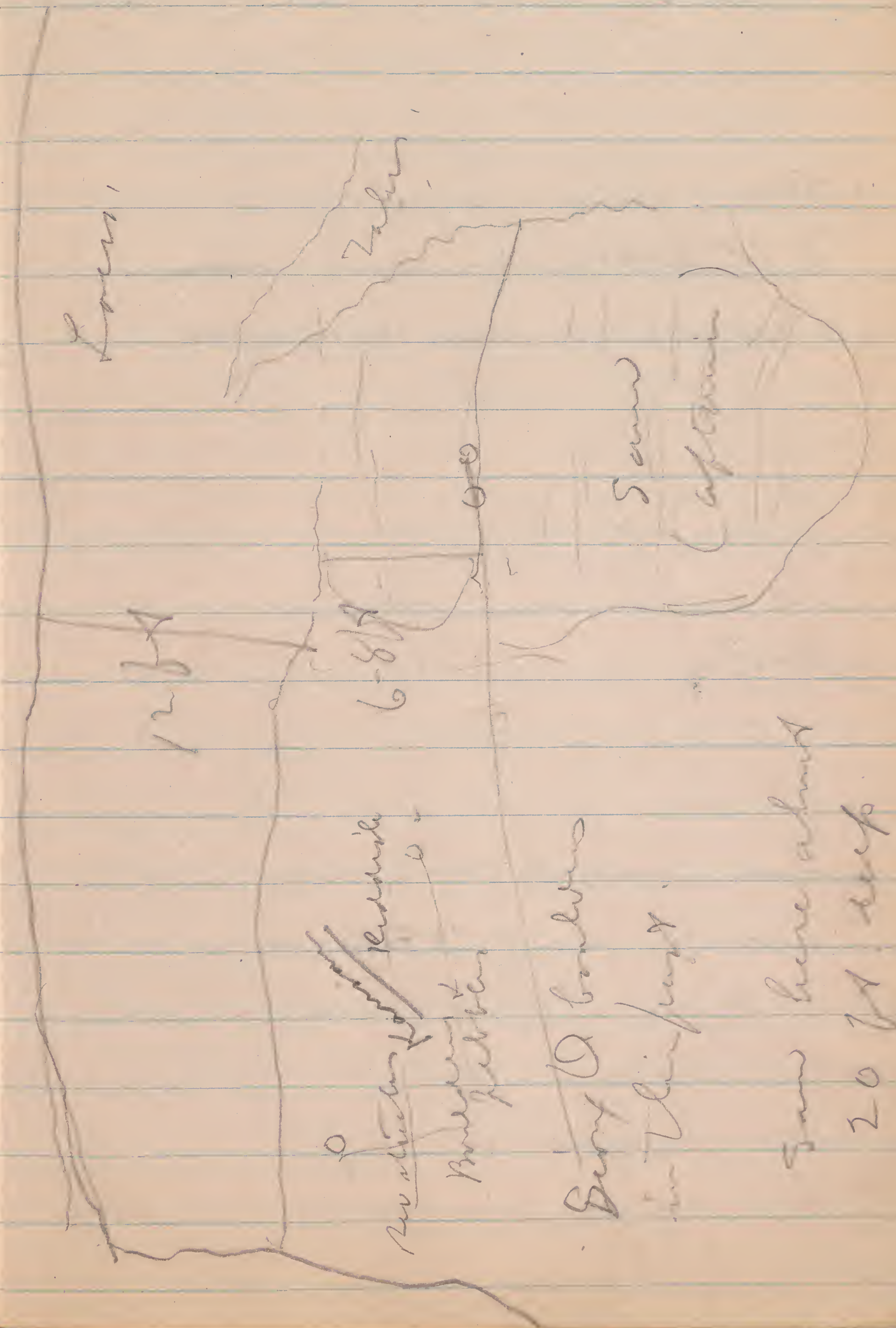
Also a fragment of
Cephalopod shell (nodular)
There are also pieces of wood?

Plots	1-2	(26)	middle pit
"	29	(27)	" " (same)

The sand in the middle
exposure is white, cross-bedded,
with some iron streaks &
in upper part a few
thin Fe streaks.

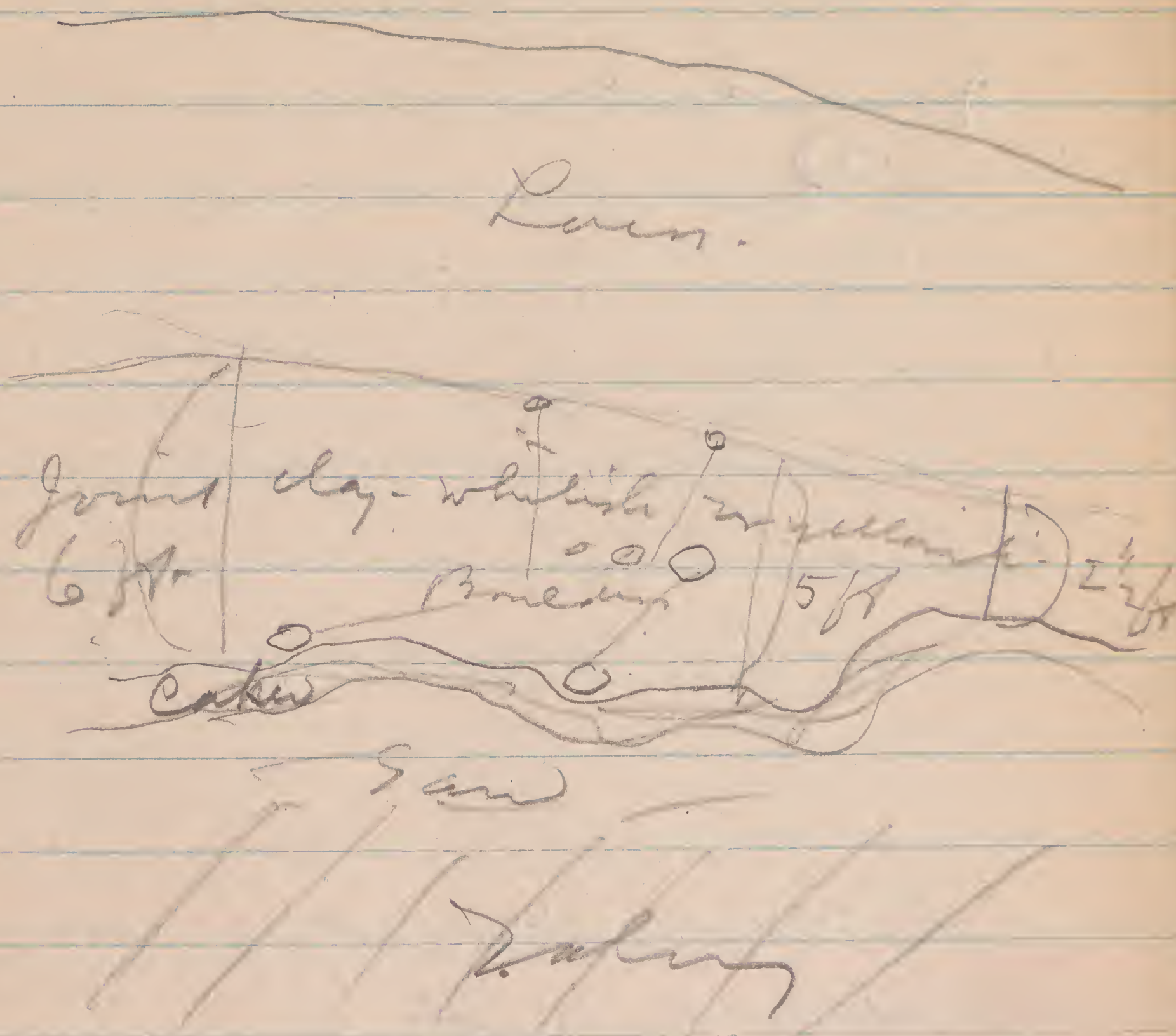
The plots were taken
just opposite fork

75
("interlooming drift") which
is now known.



The Kansan is in part
typical, & in part (especially
above sand exposure)
like just joint clay.
The line between Kansan
& Astorian is very sharp.
& oxidized in drift.

The cut to NW (to left)
at its S. end shows
Astorian below
the line between is
Kansan is sharp, contains
lime concretions & black
streaks for 8-12 in
or more, also oxidized
streaks.
Same sand as before.



This is S. end of NW cut.

Plot 30 - (27) shows above.
" 3 (26) same.
Base of pit 9 65
Base 28. 75
Sand rises 18 ft. higher
Darker rock nodules (white)
in sand.



mostly high hill

Barren - 28.57

Alt = 11,25 ft.

Photo 4 (26) - looking N. from
S. hillside 1/50 sec.

Photo 71 (27) same - 1/80 sec

No N. hill in 114 5 ft

Photo 22 (27) looking N. from

N. hill 1/25 sec.

Photo 41 (26) same even on high hills did well
this wet season 1/5

Photo 42 (26) Looking S from same 1/5

" 11 (27) same.

v.c. = very common

c. = common

n.r. = not rare

v.c. = very common 79

n.r. = not rare

v.c. = very common

Plants in the driest low hills

W. W. of Lion's Cg

<i>Solidago</i> (mostly) v.c.	<i>Panicum virgatum</i> c.
" (mostly) v.c.	<i>Panicum amaricoides</i> r.
<i>Aster oblongifolius</i> c.	<i>Euphorbia purpurea</i> c.
<i>Antennaria plantaginifolia</i> v.c.	" (fls) c.
<i>Solidago rigida</i> v.c.	<i>Asclepias tuberosa</i> r.
<i>Potentilla canadensis</i> v.c.	<i>Setaria viridis</i> n.c.
<i>Liatris pycnostachya</i> v.c.	<i>Salvia borealis</i> c.
<i>Oxytropis lamberti</i> c.	<i>Petalostemum candidum</i> c.
<i>Chrysopsis rosea</i> c.	<i>Hygocallis purpurea</i> c.
<i>Gerardia artemisiifolia</i> c. (one white)	<i>Asclepias verticillata</i> v.c.
<i>Erigeron annuus</i> n.c.	<i>Veronica repens</i> v.c.
<i>Erigeron annuus</i> v.c.	<i>Scrophularia</i> c.
<i>Andropogon furcatus</i> n.c.	<i>Rhus glabra</i> (few)
<i>Scrophularia</i> c.	<i>Yucca angustifolia</i> n.c.
<i>Yucca angustifolia</i> n.c.	<i>Petalostemum purpureum</i> r.
<i>Andropogon furcatus</i> n.c.	<i>Prunella patula</i> c.
<i>Andropogon furcatus</i> n.c.	<i>Belamcanda chinensis</i> n.c.
<i>Andropogon furcatus</i> n.c.	<i>Aster sericeus</i> n.r.
<i>Andropogon furcatus</i> n.c.	<i>Aster sericeus</i> n.r.
<i>Andropogon furcatus</i> n.c.	<i>Syntherisma</i> v.c.
<i>Andropogon furcatus</i> n.c.	<i>Aster exiguus</i> n.r.
<i>Andropogon furcatus</i> n.c.	<i>Quercus strobilata</i> v.c.
<i>Andropogon furcatus</i> n.c.	<i>Liatris pycnostachya</i> v.c.
<i>Andropogon furcatus</i> n.c.	<i>Erigeron annuus</i> n.c.
<i>Andropogon furcatus</i> n.c.	<i>Euphorbia virginica</i> v.c.
<i>Andropogon furcatus</i> n.c.	<i>Panicum capillare</i> n.c.
<i>Andropogon furcatus</i> n.c.	<i>Lithospermum angustifolium</i> r.

Photo 12 (27) looking S
across woods only $\frac{1}{5}$
" 12 (26) same $\frac{1}{5}$

Bottom at road 870 ft

at road where I went in
28.85 B m.
870 out.

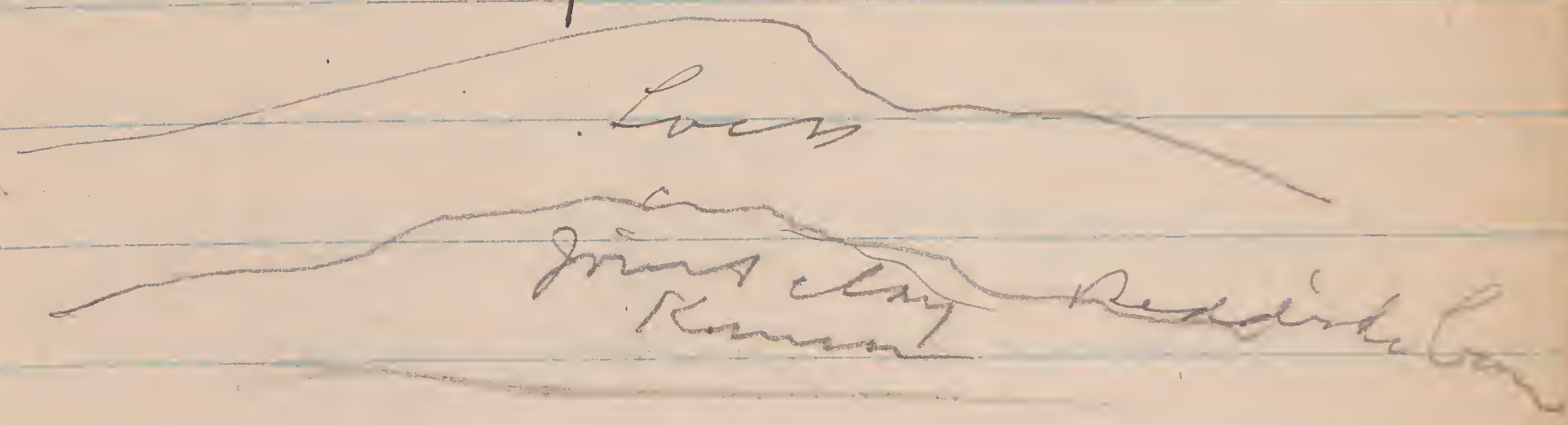
Photo 9 (27) = cut d
The loess is only part above
bur oak tree, with holes in
it

The loess both in d & e
is thin, probably not over
30 ft (estimate) with
considerable joint clay &
loose below it. Some boulders

Photo 33 (26) cut d

this is plant of Sioux City
Pine & Tile Works

Photo 10 (27) cut b



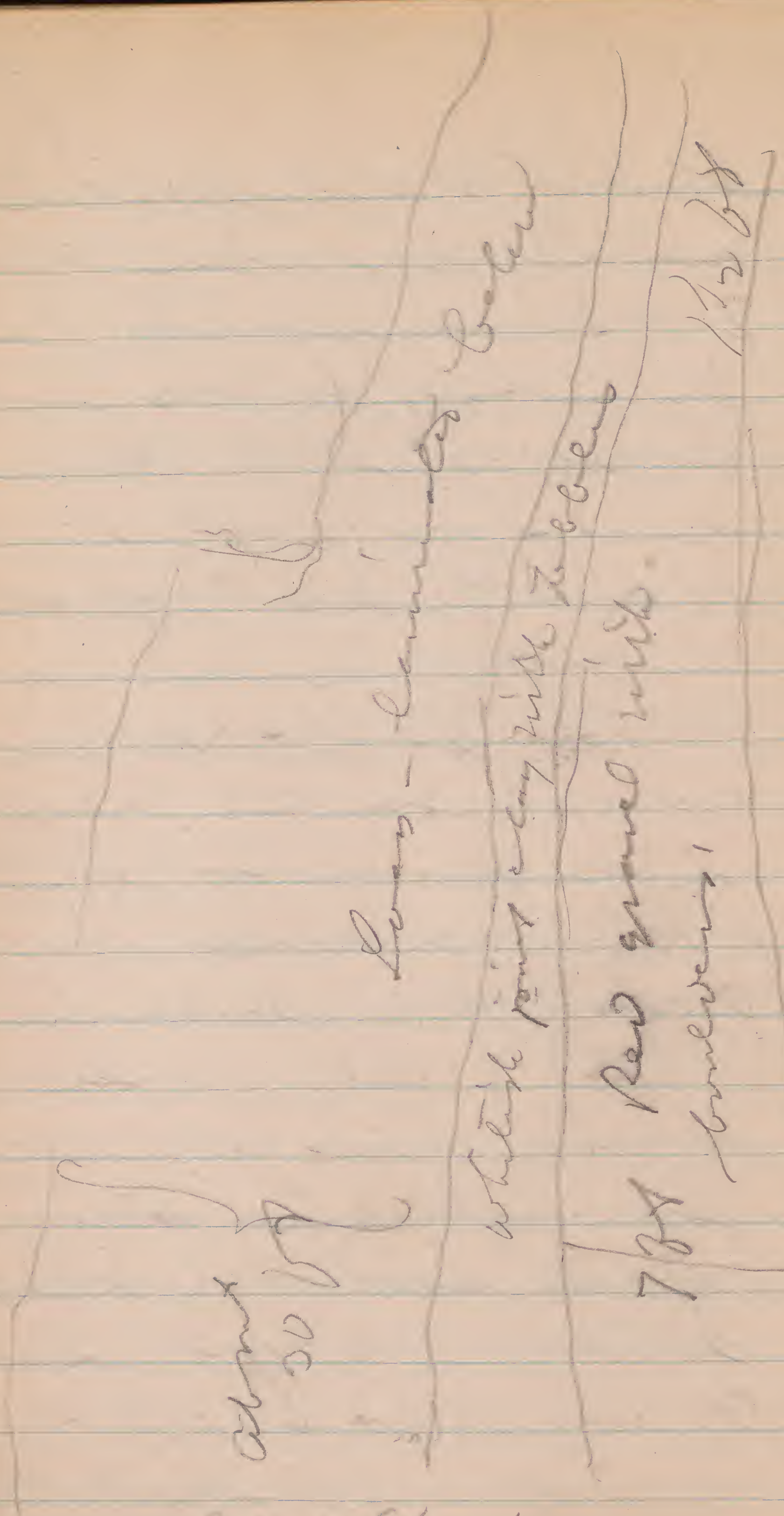
Shale

Photo 34 (26) same

Photo 7 (27) cut a
extremes in top

Photo 7 (26) same

The afternoon at curve
of RR below entrance
to Park shows in cut
as follows:



Plot 8 seen

If the old dam is in
and a, that my photos
7 + 1 are not (a) but
the down hand down just
before (b) is visible.
The road & gravel pit
is located just N. of curve
in R.R.

Sep. 10 (Fri)

Mr. H.C. Powers has charge
of the Sioux City Academy
of Science & Letters.
Packed, shipped basket & press,
& went to Library & City Hall
to see Sioux Cy. Acad. of
Sci. & Letters collection.
Open Tues. & Fri. 2-4 pm.
At 10 am. took car for
Morningside, & went to end
of line, near E. M. 8th St. depot
(now abandoned)

At depot there is a long cut, extending from street to street, & running up to 18 ft in depth, or more.

It shows fine yellow (light) loess, laminated below, slightly reddish in upper 4-6 ft, with very few nodules & no shells, excepting possibly small fragments.

The cut about a block below, at curve, is deeper on S. side. It shows the same as depot cut.

In road cut, etc. I notice that nodular layer is very prominent above, for 2-4 ft. The loess is all yellow, light.

Cuts at corner of Rustin Ave & Leich str. (along car line) show same yellow loess. Probably 20 ft. in some cases exposed.

All the cuts in this vicinity, for several blocks, show same thing.

Some of the cuts are probably 30 ft. deep. The lower part is then compact & red streaked, above that laminated, & above that some yellow micaceous.

The big bluff next to Floyd river is at least 60 ft. high & seems to be all loess, & like this.

Photos 31 & 32 show this bluff. Young cottonwood on face.

Cherokee - horn of buffalo
ask where mastodon jaw
with teeth - on case -

came from
Have tusk - which came
from Mapleton - all
broken up.

Have samples of well
1500 at 6th + Main.

Was sick all P. M.,
scarcely able to sleep about.
Left at 7:30 pm. for Mo. Valley,
received my mail, and retired.

Sep. 11 - (Sat.)

Rained early am.

Left for Cobble at 10 am.
Went up to Florence.

Clouds of dust were raised
by wind from base above
Florence.

Photos (15) & (16) - Looking N.
along timbered bluffs N. of
Florence.

Golden Hill



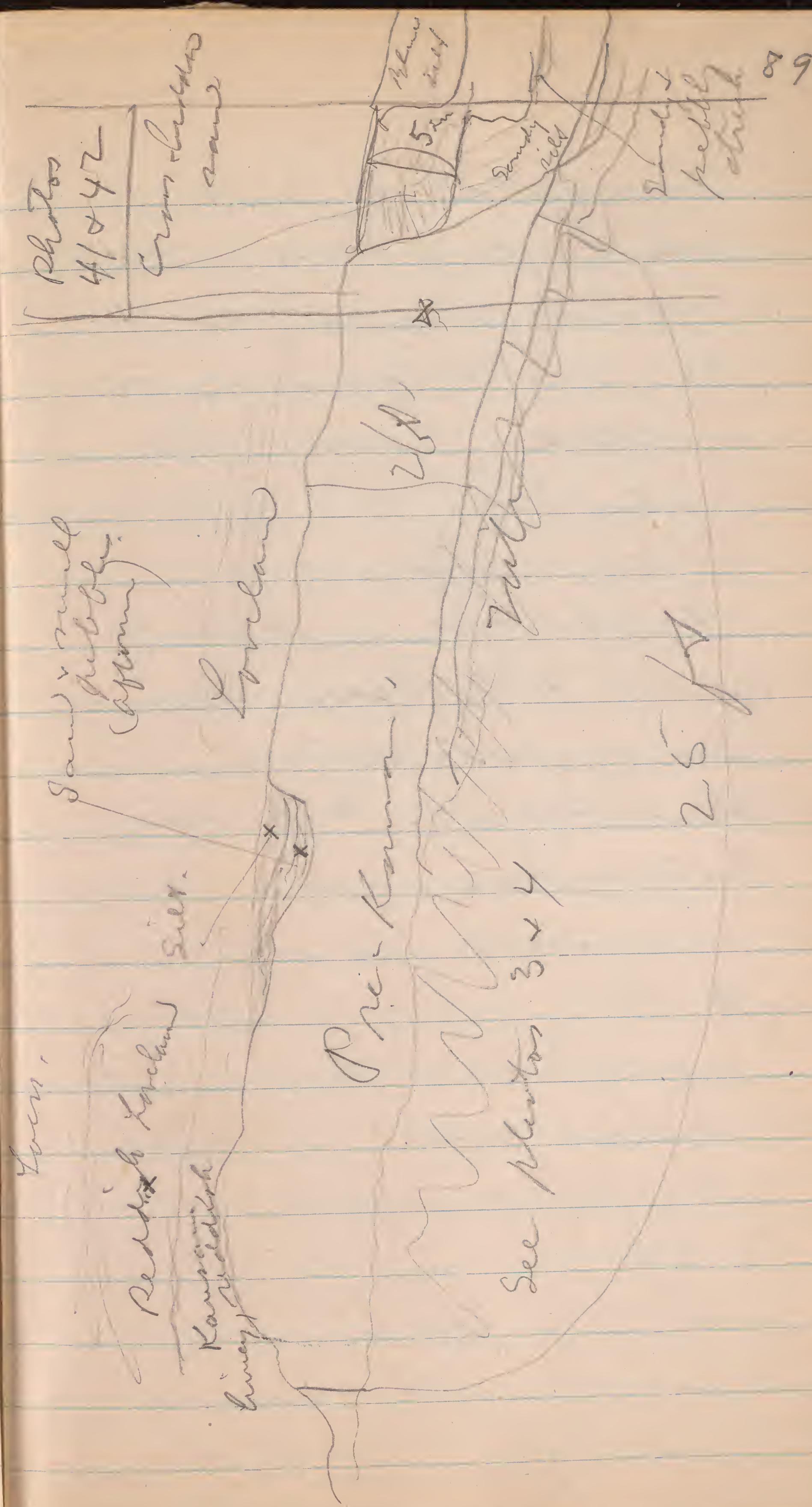
(1) At first cut above Pias Lake, - about 200 yds beyond where road, ^{just} above Pias Lake runs up hill; there is a gorge made by men fixing road.

Here Pre-Karn - Hack, with few dark pebbles & new top an occasional very small saw boulder, shows up to 10 ft above bottom land, 3 or 4 ft being exposed at highest point.

See sample of Loveland, Aftonian, silt, & pre-Karnian, taken at points marked X

Look photos 4/242 at N. end.

Pre-Karnian shows here on 50 ft along bank to north.



(1) This exposure is at
foot of high hill, more
or less slumped over, showing
the pink. however
appearing undisturbed.
100 yds N. of streamlet forming
Pines Lake.

2) About ~~200~~³⁹⁰ yds farther
N. a coarse sand & fine
gravel pit appears.
It rises 6 or 7 ft above
bottom land & extends down
at least 6 ft.
It shows cross bedding &
seems to be tilted up
towards west.
This is evidently
Aftonian.

(3) Another smaller exposure
about 100 ft N. shows
some white silt nodules —

(4) Another ^{about} 205 yds north
shows Aftonian up to at
least 16 ft. above bottom
and + 12 ft above road.
The strata here also tilt
slightly westward (tilt
up) & cross-bedding is
distinct. This is coarse
sand & fine gravel.
The bottom above
with numerous streaks
& bands & clonings of
Mud.
Some parts are quite
Aftonian. This is certainly
Aftonian. Lowland
appears above, but part

is evidently slumped

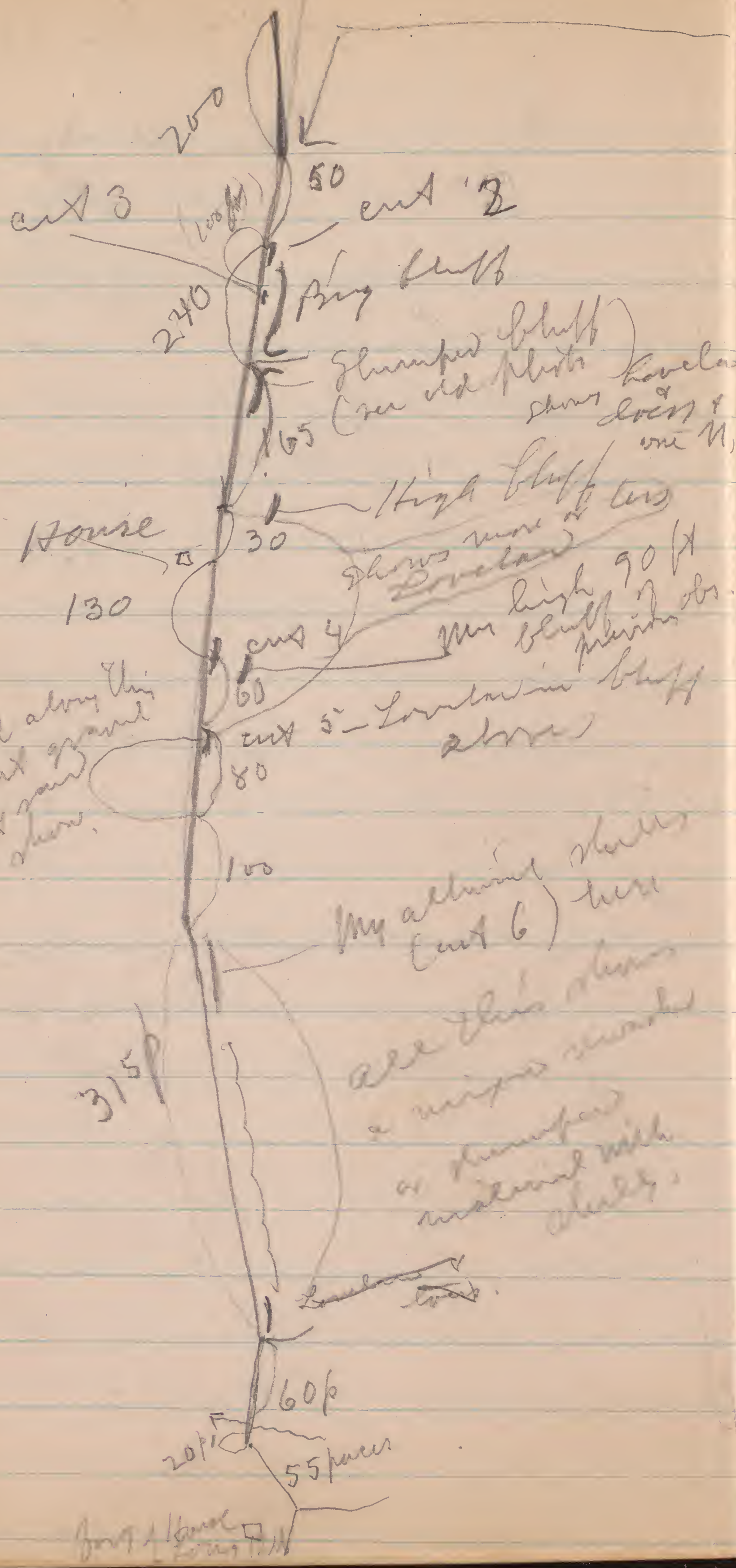
- ~~about~~
(5) ~~about~~ N. and the
less distinct exposure
on big bluff above the
Lovelace extends up probably
50 ft. above road.

- (6) About 200 yds S. of
creek at foot of Long
hill a bank of loamy
stuff, but mixed, with
dark streaks etc & not
showing texture of loam,
shows a lot of larger
shells (see box).

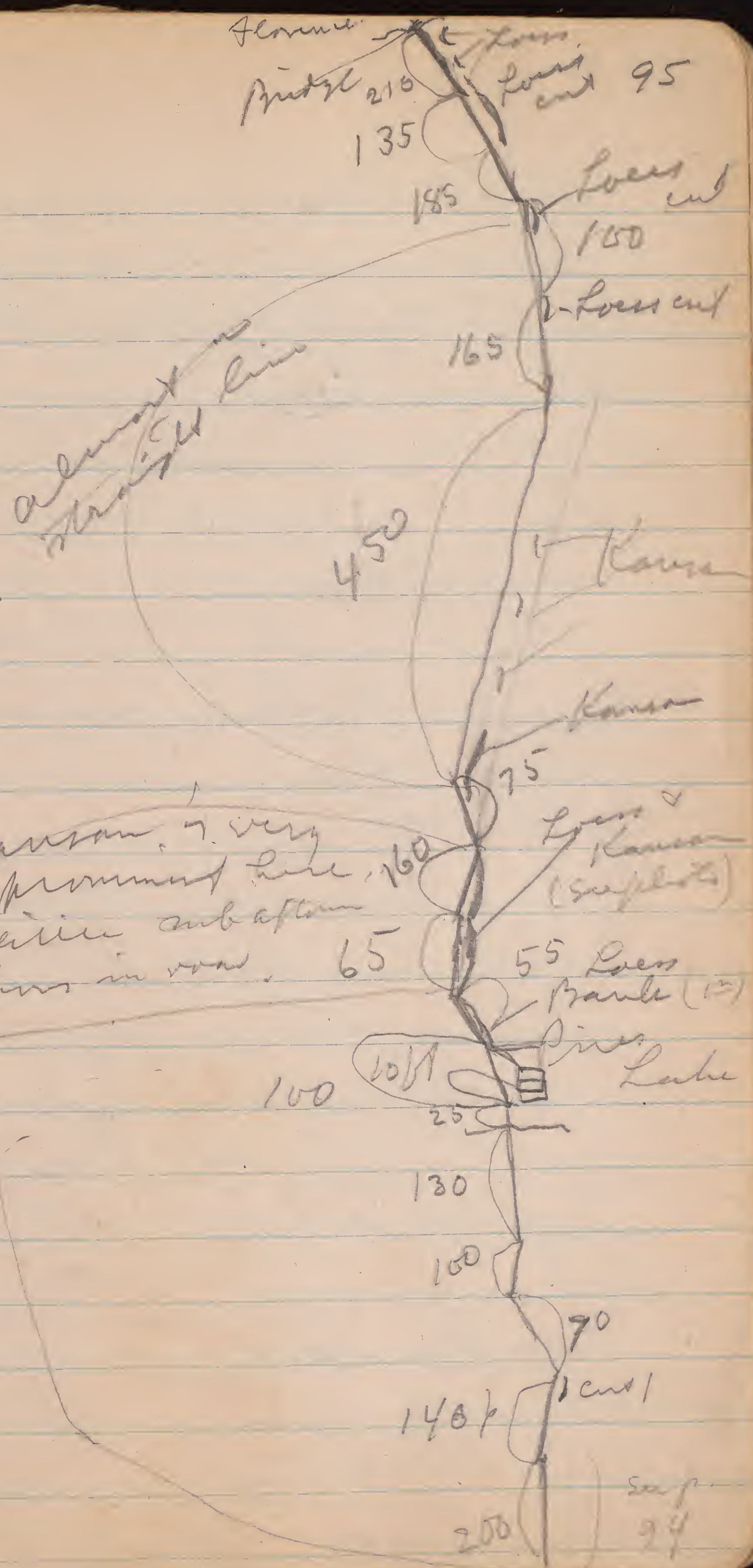
At foot of Long hill on its
slope, east side, ^{about} 100 yds off. mounds,
there is a large spring.

There is a group 93
of springs here.
Boulders, pebbles & sand
in the bed of streamlet
running from big spring
N.E. of Golden mound
& pebbles, etc along
base of bluffs & in
an old road indicate
that this spring comes
from a flowin.

A large stand in a bush
S of spring.
South of this & part
way up hill are
exposures which show
the Lovelace (red)
prominent,



140
165
30
130
3765
155



Kansan - very prominent here. a line sub aften shows in row.

sup 94

more or less sand & gravel,
& also much Loveland,
show between Pines Lake
& Long Hill.

A little sand & gravel
shows in creek bed just
N. of Florence.

There are springs or
seepy places at cuts
2, 3, etc.

Also the large springs
below Long Hill also
confirm that springs
belong (in this territory)
eventually to the
Aftonian.

The Loveland is more
or less prominent all
along the bluff, sometimes
only a thin layer, and

again quite thick.

It is evident that
the Aftonian extends
under nearly all these
bluffs.

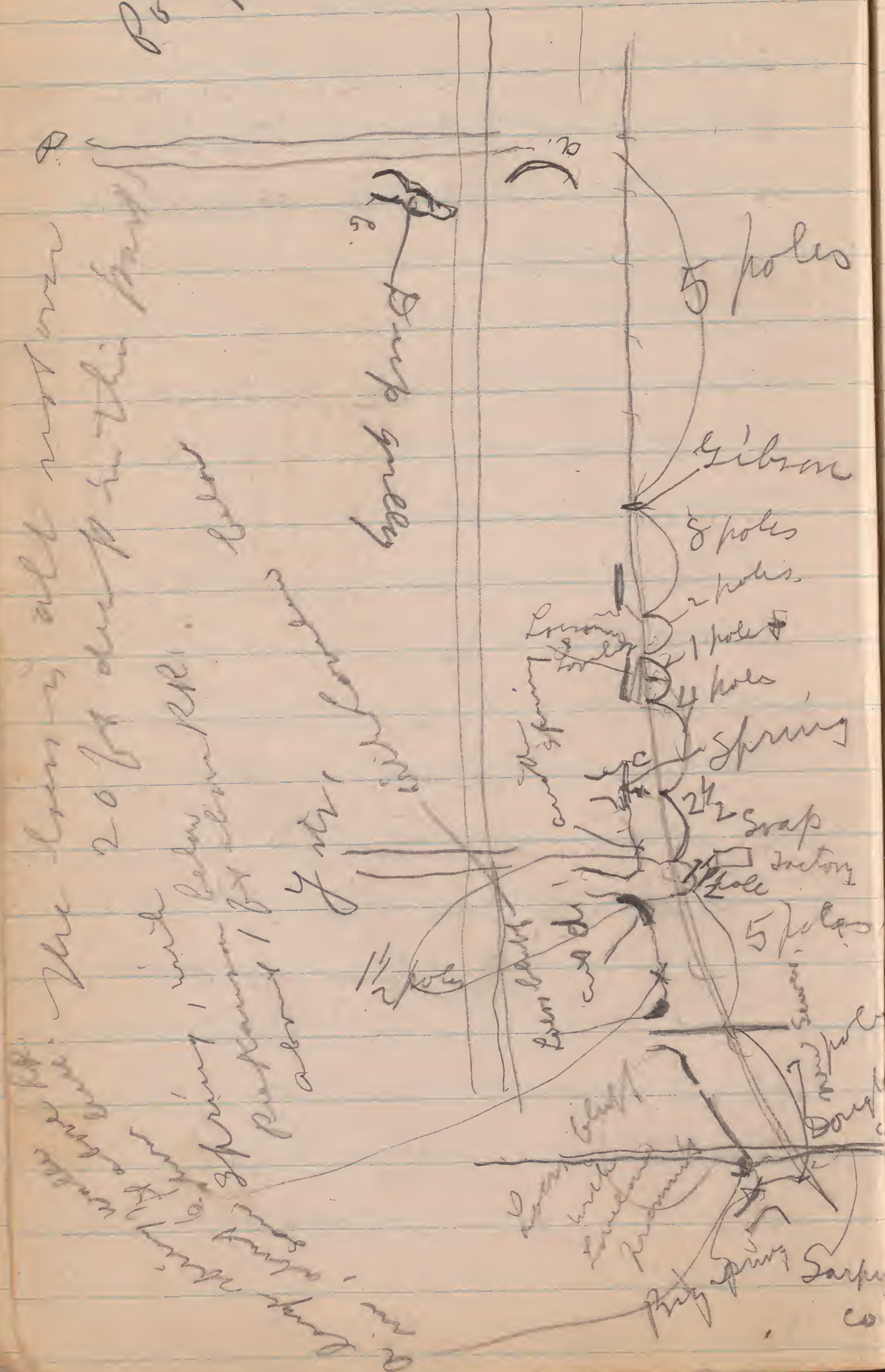
The alluvial layer
containing large shells
lies just at level of and
above road. It is
evidently like the
alluvial layer on E.
side of river and may
represent partly the
effect of dumping.

The workmen have been
grading road, and this
made observations
numerally favorable.

Poles = 150 ft

1909 Sep 12 - Sunday

Went S. with
Gibson + Gallatin
Rained all am



2250
75

99

Cut (a), more slumped, contains
limestone sand pit. The Limestone
(massive) is strongly developed,
& the line between it
and loess is sharp. Below, the
sand is clearly below
the Limestone, and hence
afternoon.

It appears like a
pocket however, and
probably represents a
flower part. This is
also suggested by all the

Reading at base of cut, &
about top of sand = 1000
Reading at RR ledge = 975

Bar. 28.84

In cut b - the Limestone
shows above afternoon, - pebbles
below.

In the deeper part of the (b.)

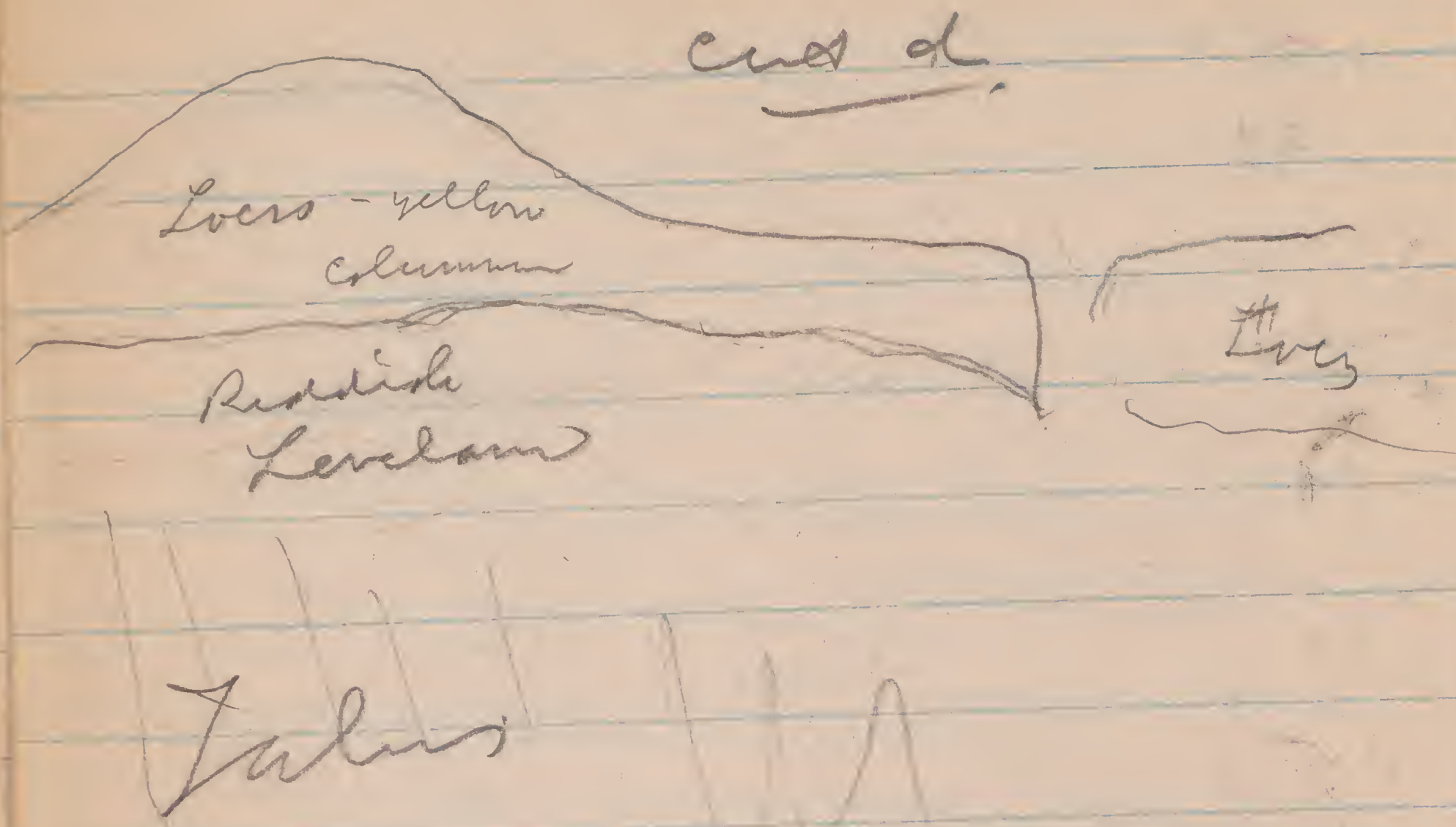
washout the Aftonian
shines below Lavalan &
a depth of at least
15 feet.

The upper 12 ft. ^{more} feet
is pretty regularly
horizontally bedded the
layers being alternately
fine sand & fine sandy
silt. Then below that
there is coarser sharp sand,
more like ordinary Aftonian,
appears below. This
part is strongly oxidized
above, with streaks
& bands of MnO_2 .

The east part (shallower)
of cut (b) has Aftonian
(top) also is 1000 ft

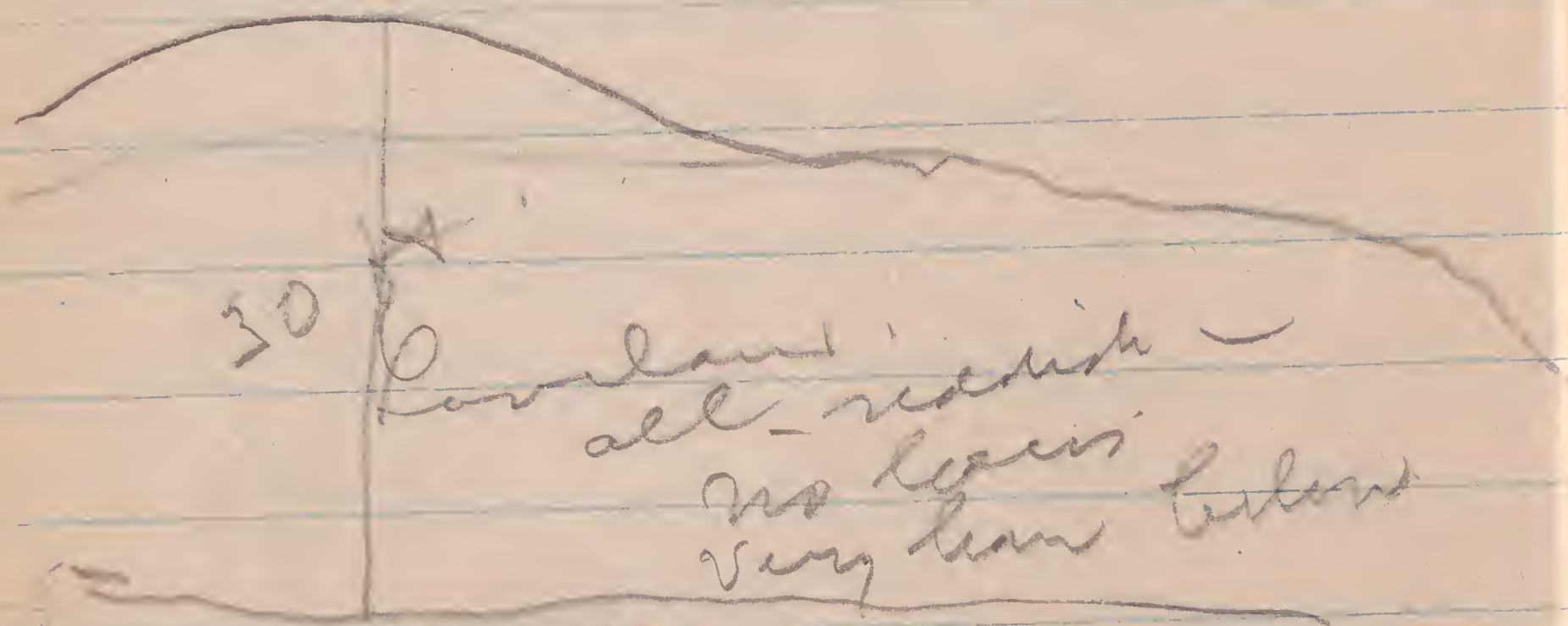
At the point (c) a stray
spring comes out ^{2 or 3 ft above surface}. There is
here a layer of pre-Karn
over 1 ft. deep. Above this
are 2+ ft. of a conglomerate
(very limy, & with some iron),
and above this some sand
& gravel appears. Out of
this comes the water.

Cut d. is sharp exposure
extending well up toward
top of hill, with very distinct
yellow column seen resting
on red Lavalan which crumbles.
The dump below did not
permit of close examination
of lower part.
See figure on next
page.



~~Offerman's~~

The S.E. bit shows about 8-15 ft. of sand.

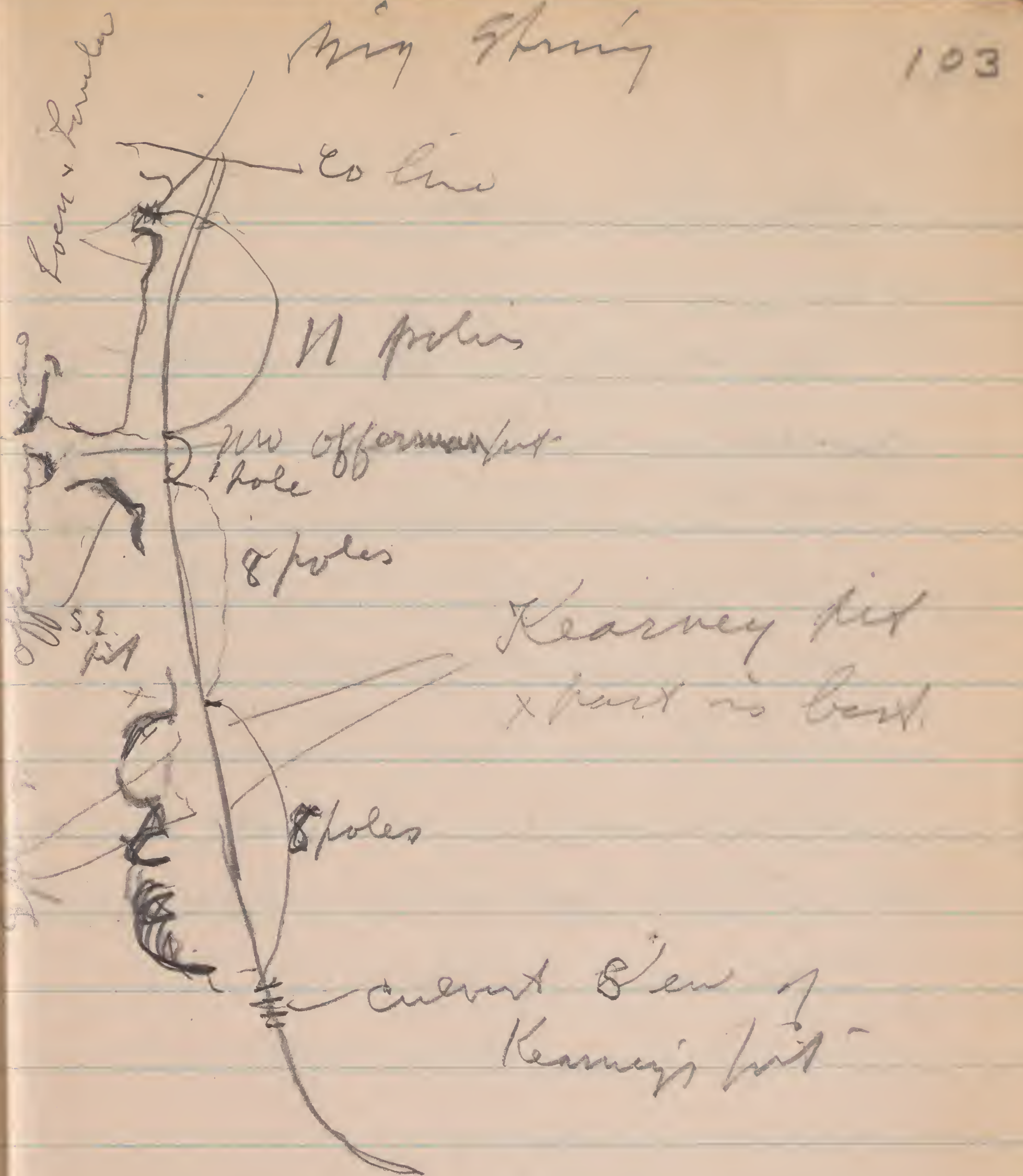


x

Offerman saw & gravel.

cross-bedded with fossils

The Offman here about 15 ft



To left of x in S.E. cut (see p. 102) the sand layer is much lower - evidently a slump.

Took photos of 1, 2, 3 S.E. cut

loess
Offerman

At Offerman pit the
sand & gravel (sand above
& gravel below) in the
NW pit; the sand runs
up to altitude —
and is about 25 ft deep.
The boulders are in
lowest part of the
Aftonian. Below the
Aftonian the pre-Kanran
appears, & they went
into this, Mr. Offerman
says, 16 ft.

Above the Aftonian there
is about 8 ft of Lovelace,
& then about 8-12
ft of loess (yellow).

A red band appears at top
of Lovelace — 1 ft thick
Top of Aftonian in NW
pit = 1025, barometer =
28.79.

Bottom of sand is just above
1000.

Mr. Fred Offerman
212 N. 25th St
So. Omaha.

From fragments of bone found
& of *Dipodomys imberbis* in the
S.E. pit.

1015 ft Top of S.E. Aftonian
28.79 — Barometer.

0 0
Plots 5 & 6 show
exposure (d)

The Kearney pit has
been worked for 25 yrs.
The best part of cut, at
x, shows

Loess - 8-15 ft

Loess
(reddish)

afternoon sand

coarser below & with
MnO₂ streaks - some
more or less tilted, very

clearly cross-bedded.
No gravel, but sand
varies from coarse to
fine

altitude at base =

1015 ft. Bar 28.79

alt. of sand (top) =
1058.

The MnO₂ streaks &
bands are common in
lower part.

In a pit S. of the
pit (or in S. part of it)
a couple of feet of
pale brown sand at
level of RR switch.
Probably 6-8 ft above
main line RR

100 ft. farther S. another
shows 5 ft. exposure.
Some small boulders
& pebbles in this.
afternoon

at S. end of the great
pit (now partly abandoned)
the peckham is exposed
for 6 ft - its top
= 1010 ft.

Above this there are
plains & more
gravel conglomerate.
Big boulders of greenstone
& red Sioux Q. are
found in lower part
of section.

28.83 Mar. on RR track
990 ft.

A barrow marks the
station Melton.

Toward evening a little
wind storm swept up the
valley, and great clouds
of dust were raised,
notwithstanding the fact
that there had been a
heavy rain early in
the morning, and heavy
showers until about noon.
When the wind subsided
the dust soon settled.
On ^{nearly} all the bluffs
examined today.

Mr. Elder, with Mr.
John Gallatin (a gas
man) and Mr. Childs
after whose family
point below So. Omaha
was named, went
along, & took much
interest in study of

starts. All these men
have been at work
on mounds.

Dr. S. East Offerman first
Mr. Offerman found and
gave me a fragment of
what appears to be
a tooth of Elephas
imperator, and Mr. Child
found a fragment of horse
tooth.

Mr. Offerman agreed
to save all bones, teeth
etc.

Send him report on
afternoon travels.

On my trip in 1890 I
saw numerous springs all
the way down the river,
these all probably come
from Aftonian.
Rains had just after we returned.

Sep. 13 (Mon)
Left for Logan at
8⁰⁰ AM.

I had rained much in the
night. ^{Lester Adams is in E 1/2}
^{sec. 14 NW. of Logan.}
In the Book of Mormon
Book of Ether, Chapter IX.
p. 590.

"19. And they also had horses
and asses, and there were
elephants and camels, and
cunoms; all of which were
useful unto man, and more
especially the elephants, and
camels, and cunoms."

I found this in Book of
Mormon at Mr. MacCabe's

Office,
Went out to cemetery
& collected plants. Took
lunch, & went to see
the "fossil pumpkin" in the

coast land, evidently a hard
clay (Cretaceous?) mudstone.
Drove out to Harris' grove
with Beckenbush.
Rained most of forenoon &
thunder all afternoon.

Went to sec. 3-78-43
to John Hull's gravel pit
this is on side hill, at
about usual elevation.
There was sand on top &
most of it is gravel.
Went into this about 5 ft
7 ft. - water at 6-7 ft.
from top of gravel.
This pit is about 30 feet
(estimated) above the
valley of Harris' Grove
creek. It shows an
evident Kansan - bluish,
with white streaks, pebbles

etc., above, on a slope,

~~Kansan~~
gravel.

The gravel is not very
clean, being more or less mixed
the material exposed for 3
or 4 ft is mostly rather
fine gravel, & cross bedding
is not here distinct.
The gravel deeper down
is clean gravel, says John Hull.
This is in all probability
Aftonian. Mr Hull
never got through gravel
on account of water.
Occasionally dark
streaks (Vander?) appear.
Pockets of fine sand show.
Found a piece of clam in
sand, probably from Aftonian.

Dr. Kennedy went with
Mr. Pecknough to
Mr. J. D. Hornby's -
was rich, + posthumous visit.
Dutton went to see
Dr. Weeks, a veterinary
surgeon. He has a lot
of mound material, - two
stone mortars, axes, etc.
gathered in the vicinity.
Rained pitchforks and
sild cuts all night.
Returned to Mt. Valley
+ went to hotel.

Sep. 14 (Tues)

Rained in morning. wrote
notes, letters, etc.
After dinner drove to
Callavins and got some broken
pottery, etc. Collected plants
on south ridge, + took photos.

Photos 1 + 2 Looking N. along
bluffs just above highway.
Photos 21 near view of sta 4.

Photos 22 more distant
across clv + river (4)

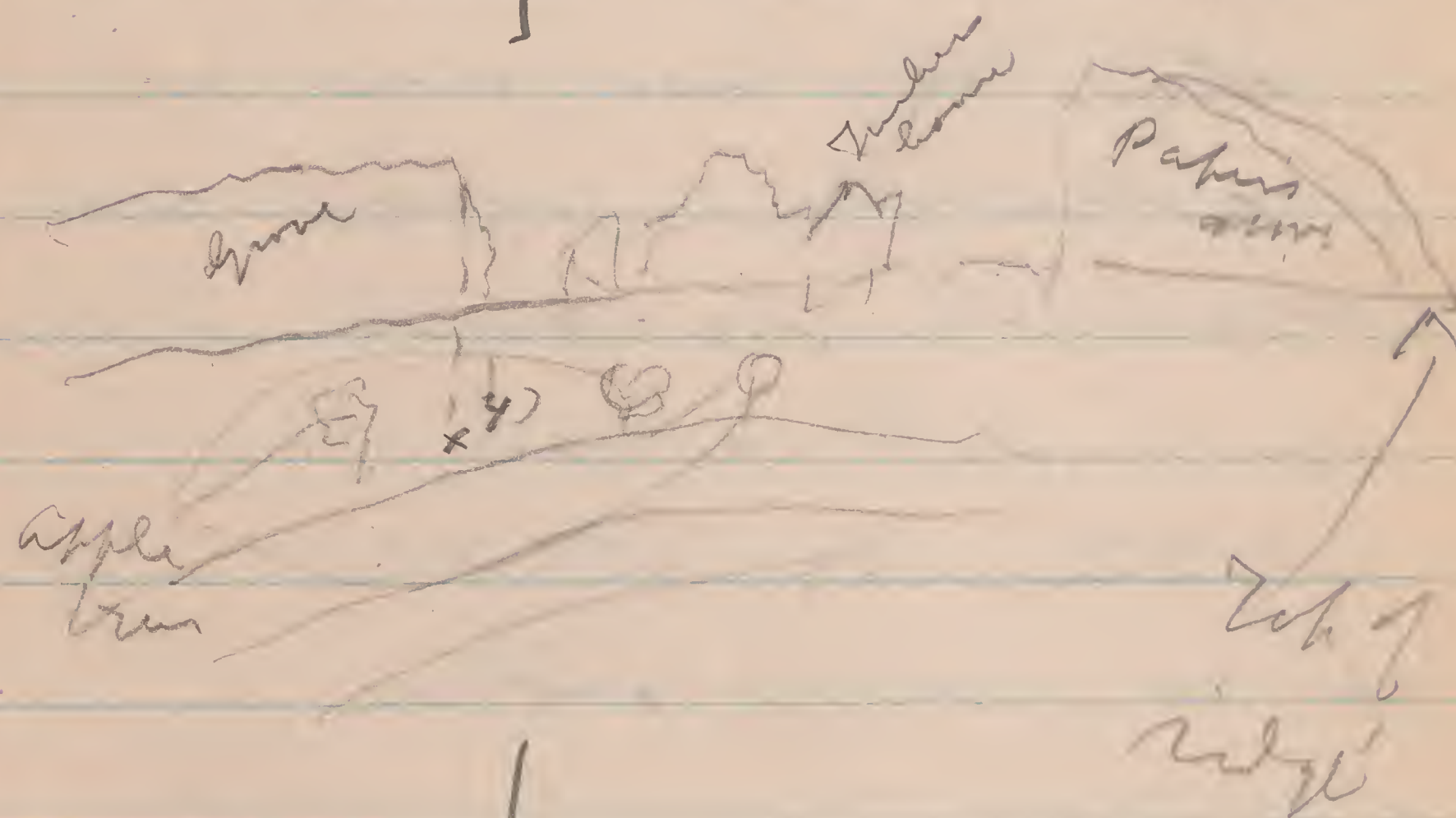


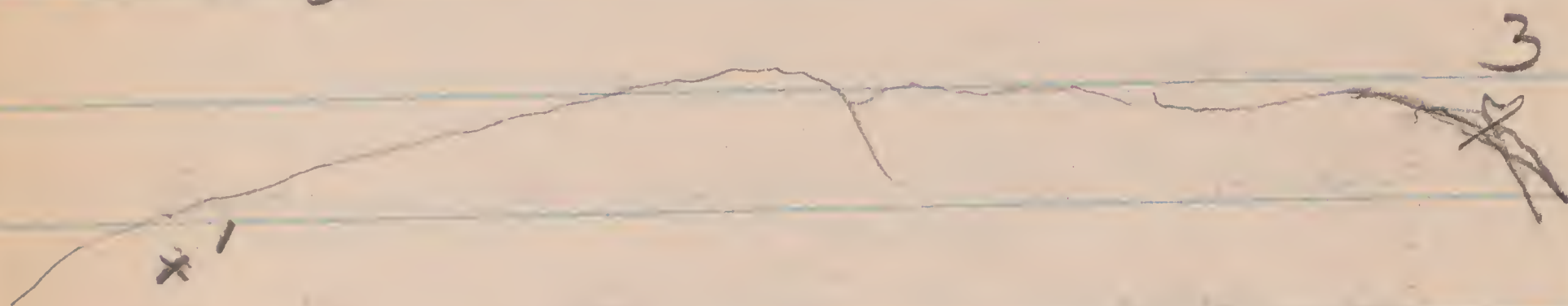
photo 1A - same

Photos 3/3 + 3/4 - Snyder (Holler)

Photos 1 View across sta. 1
to Callavins hill

Photos 11 + 12 same with fence
removed.

Photos 9 + 10 - Shum station
1 + 3



Drove to Cox's. Found
Mr. Cox not inclined to
part with his mastodon tooth.
Claude gave me a horse
tooth (fine), a shark's tooth
(from Abnash shale?), and
another large tooth.

Fine clear afternoon with
exceptionally clear air.
Wrote & packed in evening.

Sep. 15 (Wed.)

Packer & shipped small press
of plants.

Left for Woodbine at
8 am. A fine day
promised.

^{sw. m.}
C. G. Kiefer - sec. 24-80-42
found buffalo skeleton ^(parts) in creek
near house - The skull is at
his house. - Was about 25
ft. deep. Also bull and goat
teeth.

On WW Little place in
SW 1/4 29-80-42 old
pit showed sand. A
hard pan was above it, says
Mr. Kiefer.

From ^{old} pan-farm (between
Logan & Woodbine, east
a 1/4 mi. to old quarry
on E. side of river but
by it - east from bridge -

The bed of creek has
pebbles & boulders in
it. Above is loess yellow.
Cut on N. side road in
bed of NE 1/4 sec. 31 - 80-41
is quite deep - & shows
bluish (gray) loess below, laminated,
with large sand nodules.

Upper part yellow.

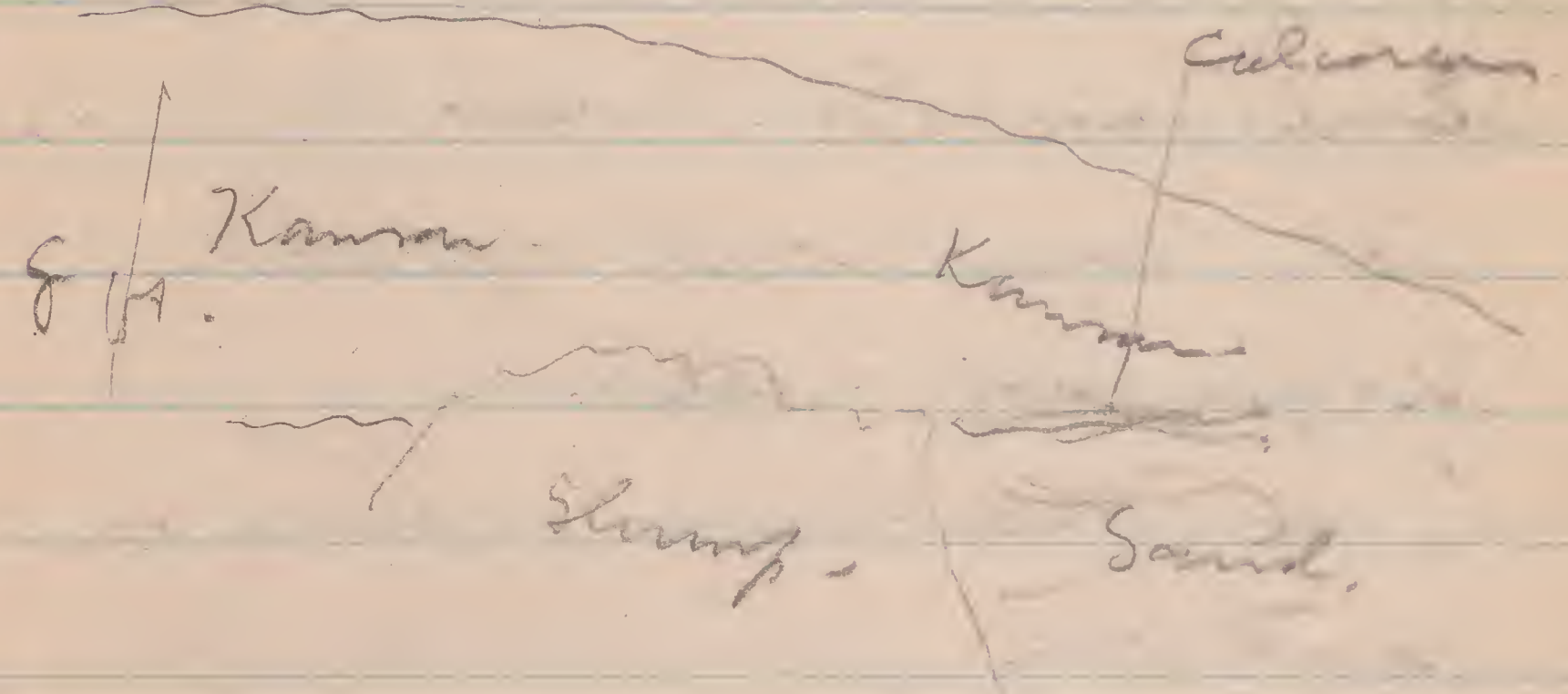
G.L. Mefford in sec 31 has a
sand pit - on S. side of
creek.

He has gone into sand about
10 ft. Changes to fine
gravel below.

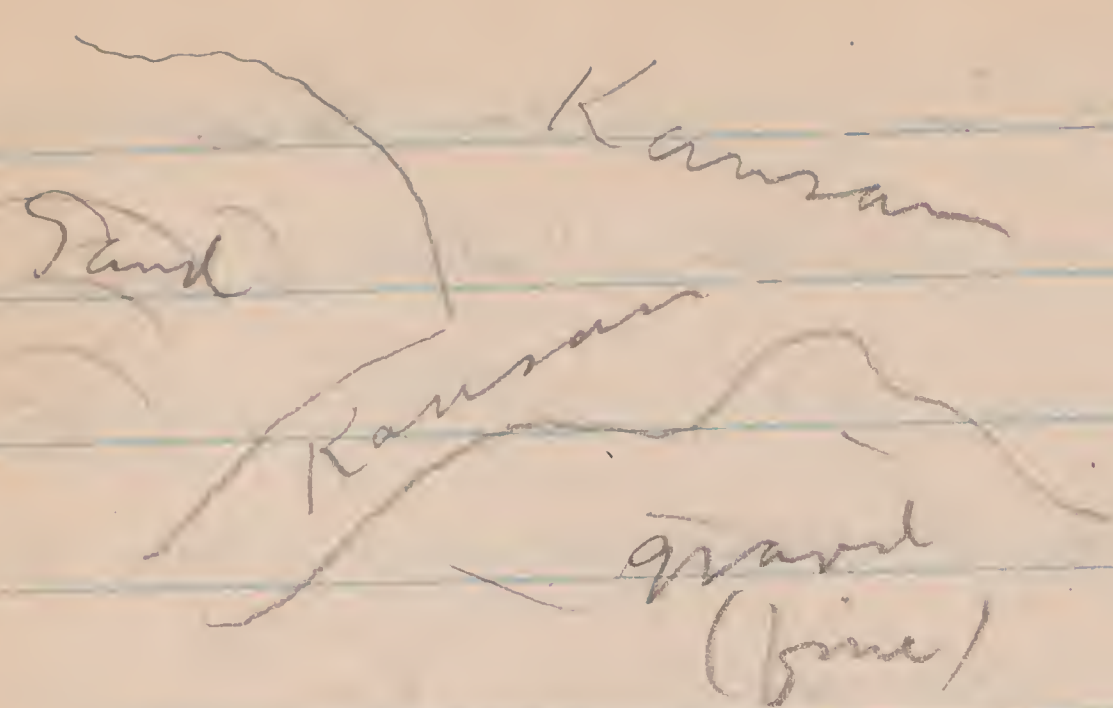
Between this & Kansan
there is a calcareous layer
as usual. The upper part
of sand is rusty.

Typical calcareous Kansan
muds from 3 to 8 ft. above
at.

119
The sand is cross-bedded, the
upper part has MnO₂ streaks
& there are a few rotten
granite boulders.



A few rods further south
on same side of creek,
there is a high bank 20 ft.
& lower 6 ft shows pockets
of coarse sand & gravel,
with Kansan boulders
evidently a gorge.
There is more gravel here.



Pierce
showing
folding.

Mr. Mufford's well runs
to gravel for water.

All along creek (down) for
some distance some
gravel sticks out
all along.

The creek has a
narrow gully, but
it is not in the alluvium.
At home - above creek
on bench 40 ft well -
went to gravel.

Lower well - banyon,
also in gravel.

Only oaks in 12 mi. group are
bur oaks.

In sec. 29 Free M...
has pit - with 10-12 ft. &
5-6 ft. of dirt above.

Sand light color & some gravel.

Water occurs in this.

Returned to Logan at 2 P.M.
& visited Mr. Crow.

He gave me notes on:

" Service southeast of Logan
R.H. Read's house well 70 ft.

to sand - N.E. 1/4. NW 1/4, 30-79 1/2

R. Hill's house well, 70 ft.

to sand - S.E. 1/4 sec. 19-79 1/2

also copy of letter from
Div. Engineer C.W. R.R.

March 26, 1903

" Between Logan and
Mr. Valley, the Boyer
Valley falls about four
feet per mile and between
Mr. Valley and Boyer bridge,

about one and ~~one~~ tenth
feet per mile."

From Ill. Cent RR

May, 13, 1903

Total fall of Boyer Valley between
Drumlap and Woodbine is 32
feet, or an average of three
and 2 tenths (3.2) feet per mile.

Total between Woodbine & Logan
is 25 ft., or an average of 3
feet per mile.

West of Logan the average slope
of the Boyer Valley is about
two and 8 tenths (2.8)

The distances are in direct line,
not following windings.

In Mr. Smith's history it
should be 10 mounds
instead of 12, and they
are exaggerated in size.

Ottumwa history 500

Mr. Chas. Lamb in
Raylan Twp. (Woodbine
is P.O.)

Mr. Crow says that
Lem Mufferd and
Mr. Purples of Avonlin
killed East Buffalo —
(see Co. report)

Latter ^{displaced} ~~adorned~~ tooth was
near middle of current on
E side (✓ same n. of
stone wall) Lay on top
of lime rock, in gravel.
This was collected in fall
of 1902.

(Ask Mr. Crow about
copper knife blade near
Logan.)

got teeth from Lester Adams.
Returned to McValley.

Sep. 16 (Th.) 1909

Parker, etc. in morning.
Left for Council Bluffs at
8:40 am.

Arrived N. at 9:30 am.
At 8th st & L Ave., S. E. of
intersection, is a great loess
bank at brickyard.

Men say that there is a harder
whitish joint clay below.

Exposed this (1)

Next brickyard above (2)

Exp. 3 is in side of bluff
down to nearly level of
road there runs a
whitish compact loess (evidently
just loam) with many fossils.
At 6 ft is a red band
6-8 in, strongly oxidized.

running & it are vertical
modules (see spec)

Above this loess is yellow
(~~loess~~) but at first
a mass of harder stuff
consolidated by seepage from
above? (see sample)

Cut 3 is about 250 yds n. of
angle in road.

The shells are mostly
crushed, & it is probable
that this is a slump.

Cut 4 is a small layer,
fresh, cut, about 150 yds
n. of (3).

Cut (4) is a deep cut
(certainly ^{about} 50 ft). It shows
no sand or gravel.

It is 100 yds long
with fossils, & sample of loam
about ³⁵ ft below top
of bank. The lower part

loam is heavy, grayish, &
shows lamination & water
lines (latter formed
after deposition?)
Oxidation streaks & patches
appear in the lower part
where it becomes yellowish
but there seem to be no
sharp lines.

Most of the shells were taken
from the steeper part, but I
dug in & found several, &
some others projecting from
face. This seems to be
in lower part only. The
shells evidently came from
the lower part of Kansan. The
surface of dumping looks clean.
Photos 4/1 + 4/2 - looking E. of A.
at cut 4 & cut 5 shows
in background.

Cut (5) shows, especially at
N. end, a lot of post Kansan
gray loam with horizontal streaks
& clumping & fossils.

The other part is stained rusty
for 4 or 5 ft, & fossils
extend through this as well.
Above it the loam looks very
compact, but where it becomes
soft and yellow as shown in
dugger marks.

It is about 20 ft to top
of Post Kansan (top of stained
layer) from corner RR
track.

Bluff is about 50 ft high
& 100 yds long. It extends
along road ^{to point where} & RR begins to
descend.

Cut 6 - is low down - its base
about level with RR &
runs only 6-8 ft It is
loam-like, fine-grained, heavy,
but tuffaceous, & evidently
my old alluvial deposit
~~full of~~ ^{many} shells. See shells
& sample of clay.

for one of the
shells

at 7. there is a great
cut excavated in hill.

and a couple of

shiny good sized things
run out. The
pebbles, etc. in
little creek S.
indicate that Aftonian
is not far

Cut 8 -

About 200 yds N. is
a low cut which shows
a couple of feet of blue-
black sub Aftonian on E.

side RR. Water seeps out
all along here, & there are
small springs and streamlets
running out.

Also all along are my alluvial(?)
shell-bearing banks.

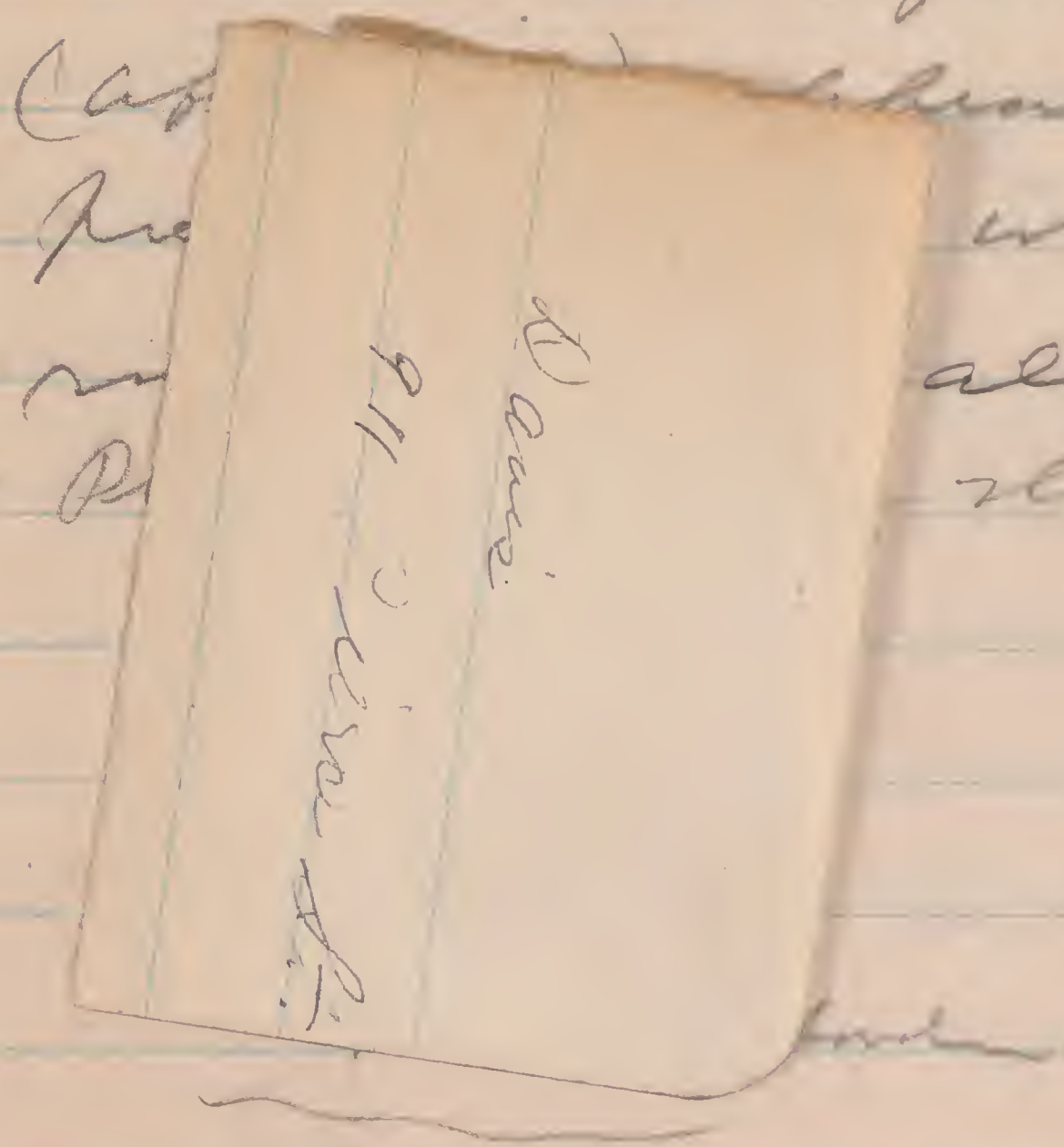
This cut is just 1075 ^{U. of} ^(not necessarily of value)
^{this is just N. 4}
^{lower 386}

Here above the sub Aftonian
there are streaks & layers
of gravel - evidently Aftonian
& above that what appears
to be Kansan & post Kansan
loam. This part is rocky
& slipping badly & with
all shells, some bluish,
& 1 Mes. multilobata was
found living.

Is this the way my alluvial
banks were formed?
Calcium nodules are
plentiful.

A spring runs from somewhat
higher point just N. of
culvert, showing that
my staff above Substation
probably slipped
cut 9 at the next culvert, about
200 yds N. the substation
rises at least 7 feet above
RR., & everywhere water
runs out from above it.
This is typical blue black
pre-Kansan, with scattered
pebbles & small boulders in
it. This is a fine exposure
of pre-Kansan - shows more
or less clearly for 100 yds
or more, - both sides of culvert.
Took sample of pre-Kansan here
cut 9
I could see sand pockets
above pre-Kansan

This cut is about 50 yds
S. of switch tower 386
at the upper end of this
cut about 2 ft of sand
(Cap) ... above
pre ... water is
all along
then this



water water

pre-Kansan
RR
Photos 15 & 16 - looking SE
along same bank
31052 would be at near end.

Davis

911 Pierce St.

A spring runs from somewhat
higher point just N. of
culvert, showing that
my staff above Substation
probably slipped

Cut 9, at the next culvert, about
200 yds N. the outcrop
rises at least 7 feet above
RR., & everywhere water
runs out from above it.

This is typical blue black
pre-Kansan, with scattered
pebbles & small boulders in
it. This is a fine exposure
of pre-Kansan - shows more
or less clearly for 100 yds
or more, - both sides of culvert.
Took sample of pre-Kansan here
cut 9

I could see sand pockets
above pre-Kansan

This cut is about 50 yds
S. of switch tower 386

at the upper end of this
cut about 2 ft of sand
(Castroville) appears above
pre-Kansan, & water is
running out all along.
Photos 30 & 31 show this

Kansan level

water

rock

pre-Kansan

RR

Photos 15 & 16 - looking SE
along same bank

31 & 32 would be at near end

A hundred feet further
N. the apterian gravel
forms properly conglomerate
the second culvert
above, with bench mark
1070, has cut which
shows apterian gravel (with
water) & above that blue
Kamran, & then reddish
(Lanceland). - cut 10
this is still quite a ways
S. of N. end of lake (Dove Lake)

This is really a whole chain
of exposures forming a series
10, 9, 8, etc. - all practically
continuous.

At 10 the subapterian
rises at least 12-14 ft
above RR & the
apterian, both now &
gravel, above is

(this makes it about 15-16 ft. 133
to bottom of gutter)

more or less conglomerated,
but water pour out everywhere
In some places Kamran
shows distinctly above, in
others it is a sort of
Lanceland. (clearly Lanceland)

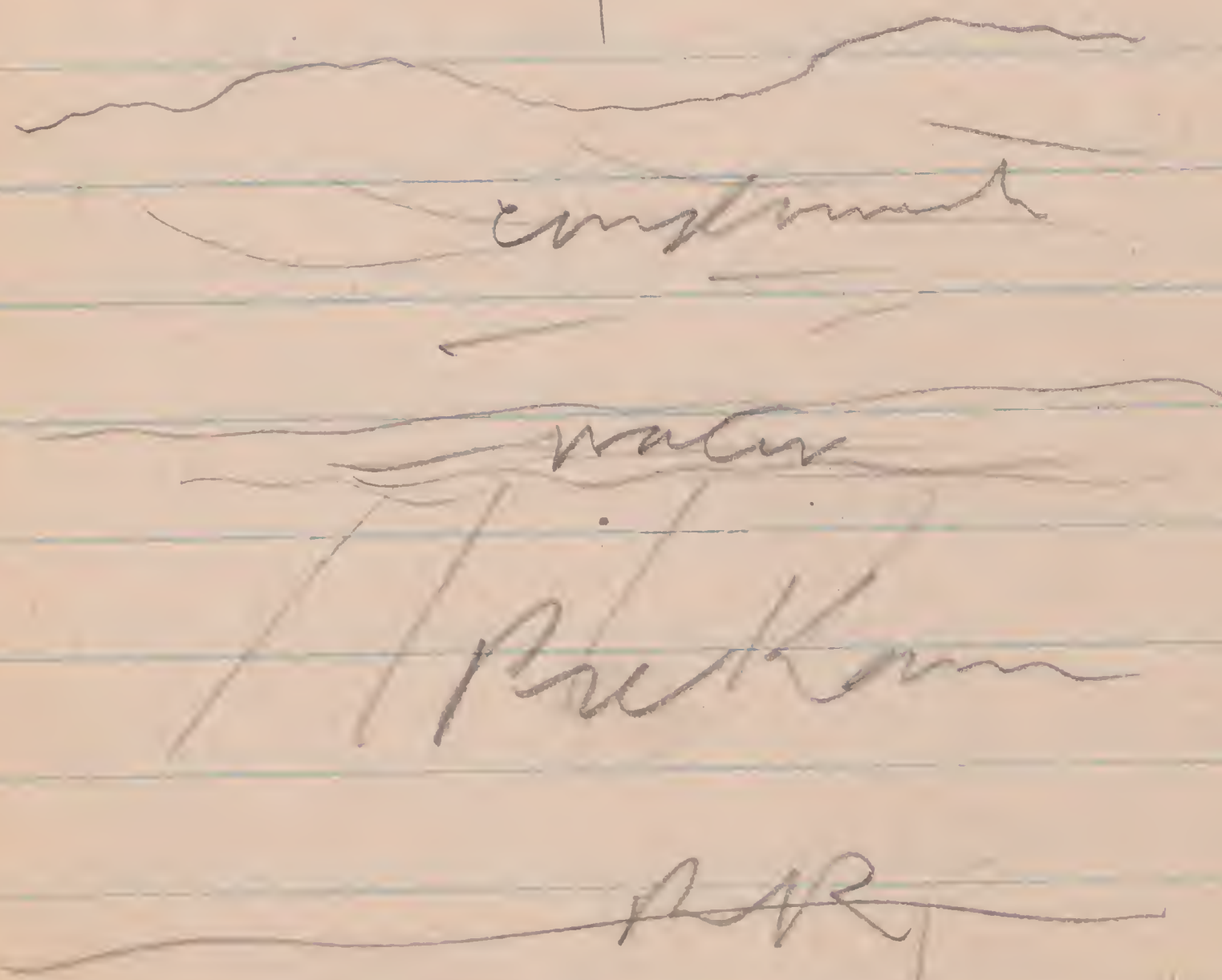
A little ways north - in N.
part of 10 - the subapterian
rises 12+ above RR, then
a hard column layer, 1 ft
or more, then more or less
conglomerated gravel about 7
ft, then consolidated (sandstone)
sand, about 5 ft. - above
indistinct - but probably
Lanceland. (see later photo with
Calvin & Meigs)

This kind of exposure extends
more than 50 yds, nearly
to culvert 1069.

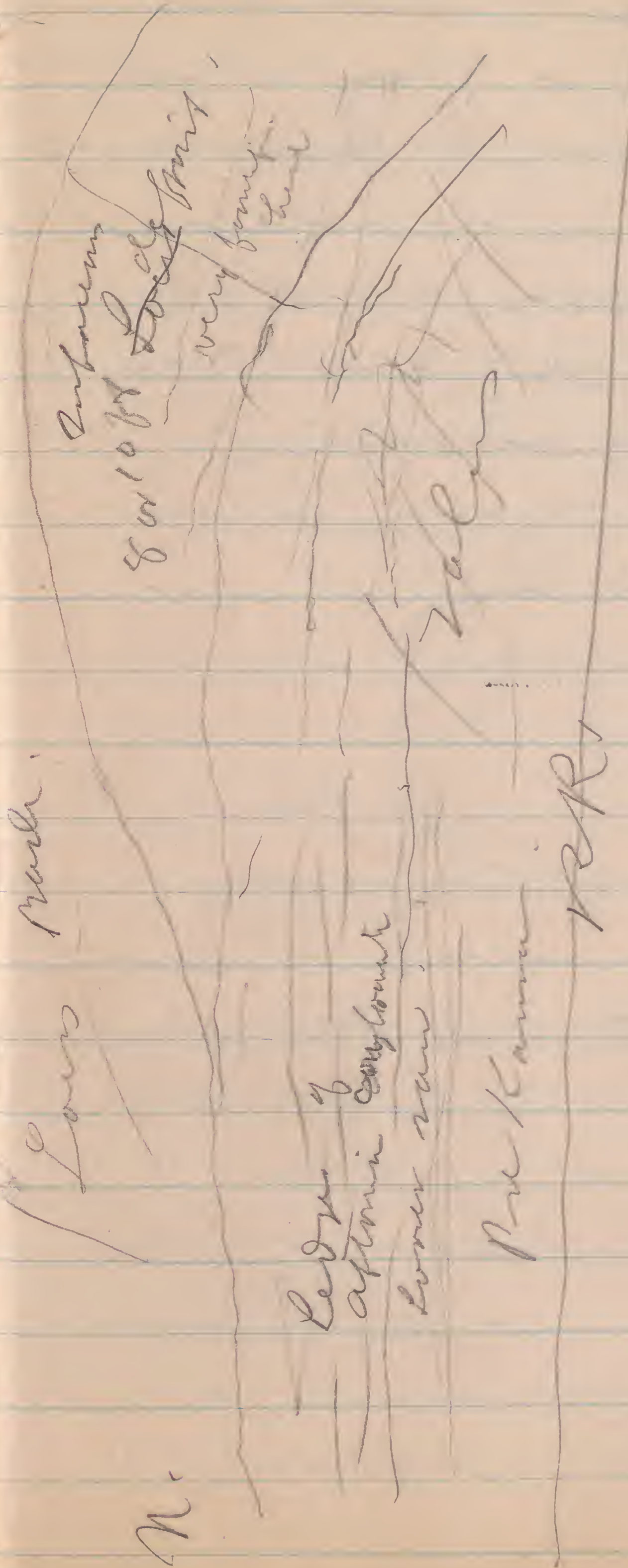
Photos 7 & 8 - cut 11 -
looking E. of N.

cut 11 is just opposite
the mile post marker CL
348 (Clinton) Is is 4 miles to C. Bluff
The consolidated cross-bedded
conglomerates are 5-8 ft
in some thick, & weather
to form projecting plates,
with lower sand

believed
Photos 19, 20

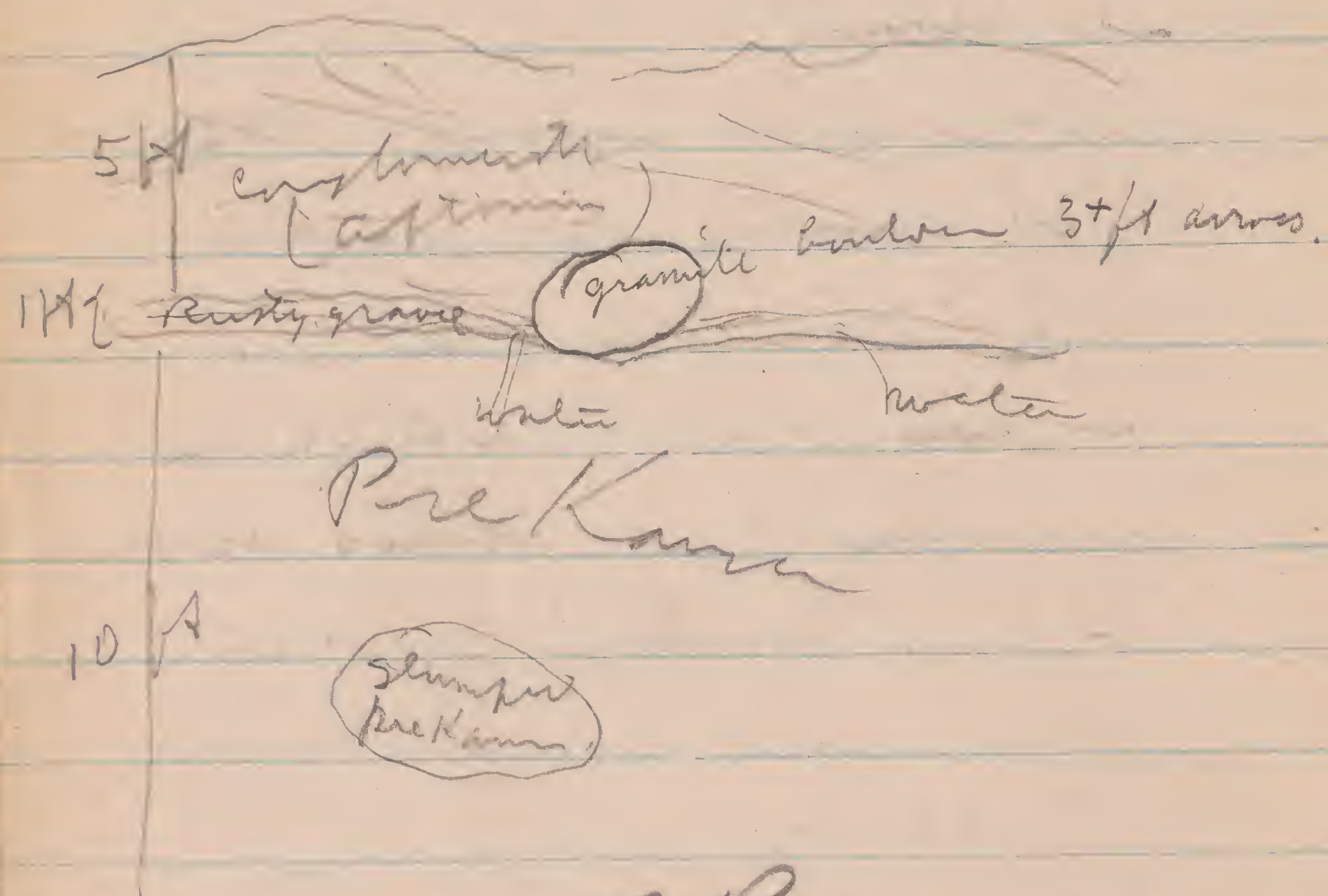


S.



S. end of cut 11

Photos 28 & 29 show N.
end, just above 4 mi. post
cut 11, (part)



RR

Photos 29 & 30 show
same with little more
exposed

At S. end the Gubara
lignis, full of
shells, is 10-12 ft
thick, & over a stone

The pre-Kamron here is very
distinct, - has a few pebbles
& small boulders, nearly
all dark.

Just above about 1066 &
S. of switch tower 384
(just between them) is
exposure 12, which is
similar to 11, shows cross-
bedded conglomerate, rusty
sand, water, pre-Kamron
of all -

Exposure 13 - is a small exposure
just N. of 12, shows a thin
conglomerate bed rising to north
(or dropping to south, rather)

Ex 14 - is at the great
pit just above N. end of
town lake.

Here in cut back, 25 or
30 ft. of Lavelle is exposed (&
near top of bank row of rocks)

show that loess begins, &
then rises back)

Below this is sand, probably
15 ft, shown poorly because
of slump.

Down on level of entrance
appear slabs of
conglomerate, & in outer
bank next to RR. The
McKinnon shows as
before.

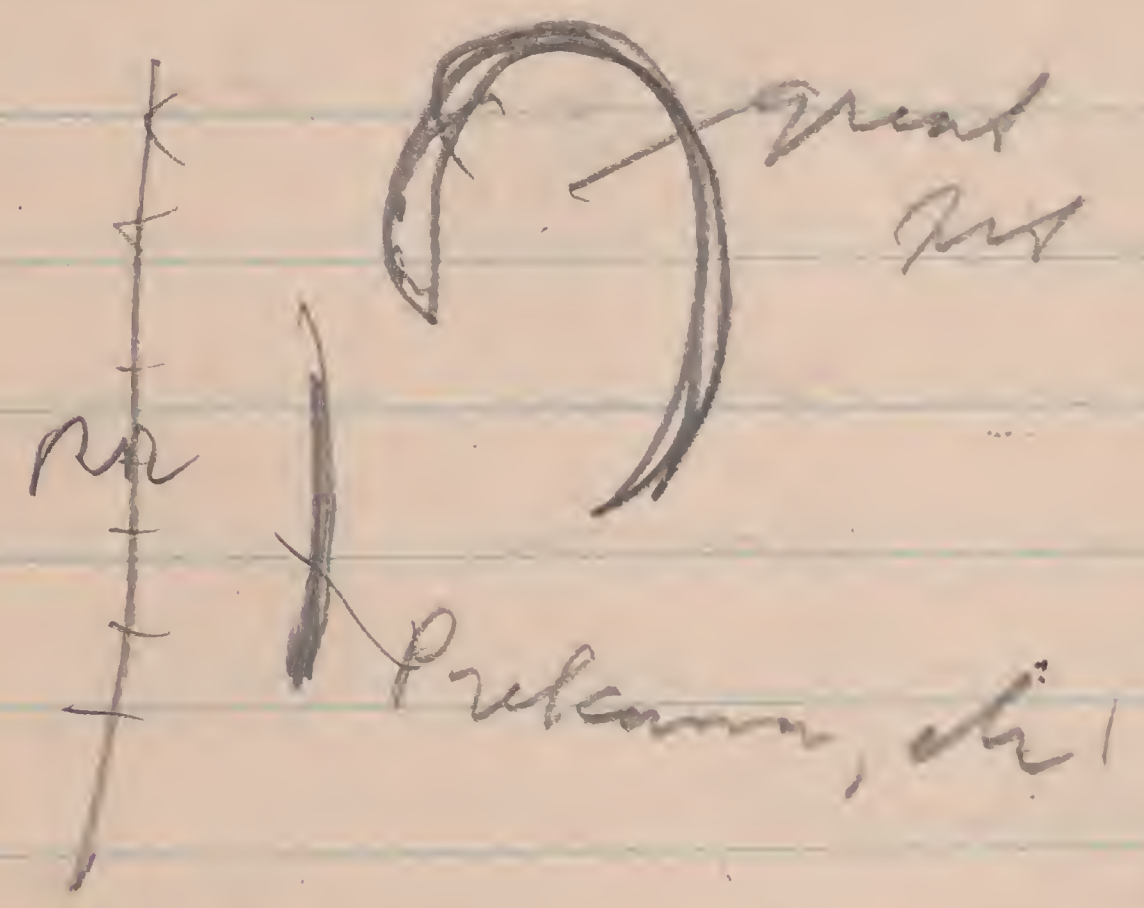
Photo 5 shows part of
inner bank



London

valley mostly
over sand

Exp. 14 should be just
S. of ^{N.} end of lake - I have
pushed there up too far.
The apt. is conglomerate
for 4 or 5 ft or more in
bank next to RR. The
finer sand in great pit
is higher. (15 ft)



Its N. end is just off
switch tower D 393

It is about 1050 ft
from great pit to culvert
at N. end of lake (uppermost
point) and about 1100
ft to beginning of curve N.
It is 500 ft. more to corner
1055;

all along the banks or
rather a continuous steep
bluff N. of great pit
to the 1500 ft. point
(corner 1055) there
are occasional outcroppings
below of sub-Aptian,
& a few. The
level above river high.

Photo 6. looking N. at
bluff

Culvert 1054 is 500 farther
on + 200 ft. farther N.
the hill photographs are

Photo 6. begins.

This is at tower 384 looking
N. or 391 looking S.
(Two towers together.)

The big bluff then extends
for 1700 ft. It shows
the Kanab, at about 12-
15 ft in places, & above is
a belt of gravel & Kanab
above this with loam and
up.

At 1200 is corner 1052

The 1700 ft point is
4 or 500 ft across gravel
curve to E.

Sub Aptian shows at
intervals all along.
At 1700 there is a bank
then (from end of 1700) for 2000
ft more the bluffs are
broken & interrupted & shrunken

but they show few Kanran
& spring all along.

This is well across canyon,
at beginning of straight
stretch N., & is at
tower D, 391 (looking S)

and elevation 1050.

Much alluvial sand with
shells all along.

Then for 4800 to
tower 382 looking N. or
tower 389 looking S (elevation
1033) the bluffs are

broken, sometimes nearly

dumped & overgrown

first spring shown &

occasionally (rarely)

subaqueous

This must be near the top-
line.

at 2600 add to
above is 3/4 a mile

Foot. Bluffs broken &
overgrown

Add 400 = wagon road crossing

Add 1800 = there are
large outcroppings of white
limestone (Massena)

(To Crescent add about
2600 +)

Saw one cow hit about
1/2 way between Honey Creek
& Loveland (from train) &
one about 1/2 mi. S. of
Loveland.

Reached Mo. Valley & ran
a couple of miles N.
along bluffs.

Parked in evening, and
retired late.

Sep. 17 - (Fri.) 1909

Left Mrs. Valley at about
6⁺ AM. for Turin.

Met Dr. H. E. Douglass

Onawa, Ia

Has foetus - 175 day of pregnancy.

Went to Turin & met

Mr. W. E. Babcock.

He has Mastodon teeth,

& a lot of other bones, obtained

10-12 ft. below top of sand,

in a gravelly layer.

Left at 10 P for Whiting.

Visited Coyne grove (old

Whiting homestead)

Found following plants

Body of grove soft maple,

Iron and elm, Hackberry,

Redcedar, pine, & box elder.

Succow;

Morus rubra

Quercus

Vitis vulpina

Xanthoxylum am
Common -

Ribes cereum

Also following:

Eupatorium ageratum - very common

Prenanthes - (blue) not common

Dracopis - not rare.

Urtica - common.

Plantago - scattered.

Lamium maculatum common

Lappula
Echinops - not rare

Galium aparine - " "

Actium - not common

(see plants)

Photos 8 & 9 - Deep woods -

Coyne grove.

Photos 11, 12, Whiting school.

Photo 13 - Looking N. from Coyne grove.

N. = soft maple.

E = Box elder

Photo $\frac{2}{2}$ = narrow (right)
American Pine (left)

Photo $\frac{2}{9}$ & $\frac{30}{30}$ - walnuts on
N. side of road E. of
cemetery S. of Cozine's
4-8 in diam.

Photo $\frac{2}{5}$ & $\frac{2}{6}$ - Looking N.
On W. side is N. & S. row of
walnuts. To end of row about
25 ft, then about 15 ft
bare, & then about
for 20 ft. corn is smaller,
growing taller eastward. It
may also be wetter, flatter,
here.

Corn N. of E. & W. row is
30 ft N. of trunk &
crown extra 18 ft.

Corn scarcely smaller in
1st row.

These walnuts are 6-10 in
diam & 60 or more ft. high

Photo $\frac{1}{2}$ & $\frac{2}{2}$ - Looking E. along
road S. of Cozine's.
Cottonwoods on South side
& walnuts on north. At
E. end of walnuts, extending
along their S. side is also
row of big cottonwoods.

Photo $\frac{D}{D}$ & $\frac{D}{D}$ - young walnut
grove (diam = $2\frac{1}{2}$ - 4 in)
S. of Cozine's on E. side of
road. Too dense.

Photo $\frac{4}{1}$ & $\frac{4}{2}$ - Looking N.
From turn in road E. side
S. of Cozine's

On left = Oak grove

On right = Soft maple

Returns, took supper &
left at 5:53 PM. for
Cedar Rapids

Reached Cedar Rapids at about
2:05 AM, & met John D. &

wife at depot. Her brother
at Omaha died & they left
at 4 am. Had quite a
chat with John over convention
affairs.

Left at 5 am for home.

Sep. 25, 1909 (Saturday)
Left Iowa City at 5:10 am
for Muscatine & Hamilton, -
with L. A. Biddings.

We walked to E. & W. road just
N. of S. end of sand mound,
& collected plants on the
sandy flats in both
Muscatine & Louisa counties.

Traced county line exactly
this time, & found that all
that territory to fence just
N. of Salix humilis
slope, is in Louisa co.

This puts the blow-holes on
west-side (with box elder, plum,
stilted oaks, etc, - all in
Louisa co.

Also the great blow holes
on W. side, including
flame with honey locust,
& area covered with

Zephronia which I had previously
photographed. The fence
near S. end of Timbered Trip
is ~~in~~ county line.

Took photo of melon patch
also of prairie slope on
W. side of sand mound.

The soil is everywhere loose
sand, & at middle of slope
small pebbles are not
uncommon. Also saw
union shells (bleached) at
several points, but near
farm house, & it is possible
children carried them here.

Found plants grouped in
interesting manner.

Thus at S. end of W. slope
Monarda fistulosa (now old)
was very common; so was
Solidago (scabrous) now

nearly through. Solidago rigida
was quite common, & Parian
capitata, P. scaberrimum, & a
fine "Stipa like" grass were
very common. Brilliant slightly
was not rare.

Northward, N. of farmhouse
on N. slope & at top near
N. edge Leontis scariosa
was exceedingly common, mostly
through flowering. On old
cultivated part on top
Artemisia was exceedingly
common - covered large area.
Leontis cylindrica, now
through, was quite common.
Both Solidagos again
very common.

Still farther N., toward
County line, Monarda etc
again more common &

fewer *Liatris* & *Solidago*,
Graphalium polycephalum
 is very common - more
 common in patches.

Lephoria, *Physotopia*, *Rhus*
trilobata, *Antennaria*
plantaginifolia & more
 rarely *Dioica*, *Bouillon*
origanacea, etc. occur in
 patches or families.

There are occasional clumps
 of *Ceanothus*, *Salix humilis*
 (northward toward co. line), &

^{some} *Lactuca* (also chiefly
 northward).

Cenchrus is everywhere
 common.

Lephoria, *Stipa* like fine
 grass, etc. predominate
 N.E. toward flow holes.

Took photos of dunes
 & honey locusts, these

started by exposure.

Found *Lobelia cardinalis*
 & some *syphilitica*, common
 in timber sheltered
 belt on N.E. side.
 Took photo of *Ptelea*
trilobata at N. end
 of sand mound.

Walked back to
 Midland, (collected much
Croton in flower on
 N.W. slope of sand
 mound, also *Solanum*
nigrum in timber belt.)
 Took lunch in little lunch
 room, and at 8:15 P.M.

Left for Columbus, Jc.
 at 10:28 for West Liberty
 at 11:28 for Iowa City.

65
 5.66
 13
 6.44
 2.54

Feb. 10, 1910 -

Hack, Iowa City	.25
Brush, lantern	.25
RR to Cedar Rapids	.65
Dray " "	.25
RR to Turin ^{Donawa} Ia.	5.66
Sleeper	1.50
RR to Turin	.13 ⁺
Lunch ²⁵ Supper ³⁵ 35	.95
RR to Mo. Valley ⁵⁰	.91
Hotel Mo. Valley check ¹⁰	.60
Plats " "	.50
RR to Co. Bluff ⁴³ Carfare ¹⁵	.58
Apples ¹⁰ Paper ⁵ Corn ¹⁰	.25
muckpots	.25
[Trip to Sioux City ⁵⁸ , Lunch ⁴⁵	1.33
RR to Turin	.88
RR Co. Bluff to Iowa City	5.66

Feb. 10, 1910

Started at 9:30 pm for C. Rapids
 Took train (C. Mo) at C. R.
 for Turin.

Feb. 11, 1910

Left just before midnight 3rd 10th
 Reached Turin at 9 am. &
 after waiting for hauling
 of curtain, left at about 11
 am for Sioux City
 Reached Sioux City at 1 pm &
 went to High School.

From principal Cole.
 Also Mr. French, Mr. Beck.
 Found that Thurlin's meeting
 would be held Wed. 9, 10th
 Left at 5 pm for
 Turin, which I reached at
 6:22 am.

Set up lantern & lectured
 on Resurrection of Uniona county
 Spent night with Mr. Bisbee

who is Mr. Babcock's prospective
father in law.

Met
Feb. 12, 1910.

A. J. Bristol -

Castana, Ia R. F. D. no. 1.
Wants pictures of Belvedere bench.

Wants a $\frac{1}{2}$ doz. showing
wheat field.

Secured bones teeth from Babcock.

G. E. McMaster -

Liconic, Ia. -

Has hills, etc. in view with
some.

Talked to farmers in afternoon
on conservation.

Had taken trip into hills
Mr. & got a series of pictures.

Left at 4:45 P.M. for
Onawa, Met C. G. Oliver
& went to his father
Judge Addison Oliver,
an old settler.

Had a pleasant chat
with him,

Judge Addison Oliver
Planted 1500 bushels of
walnuts -

Commenced before 1890 (or
about 1890)

Planted in and over some
 $\frac{3}{4}$ mi. square - In which
was forest of cottonwoods,
maple, elm. Some green
ash. Native forest cut
over by RR. After
being cut over much ash
came up.

When trees were from 1 to
3 yrs. old. Fruits came
in from there tall
as man did not pick
only low ones. In early
90's.

also planted many kinds
of black locust, Russian
mulberry & catalpa. The

later all ~~frayed~~ ^{dry}
 out. Many black locusts
 are left - 6 in diam. &
 40 ft. high. Short rapid
 growth of harder trees
 trees were not cultivated.
 White black locust when
 in shade, is good for
 Russian ironing - some left,
 but slow growth where
 not cultivated. But many
 left. Some extensive held
 out. Some pretty well
 in land 3 or 4 yrs. Some
 6 in diam & 30-40 ft. high.
 Sec. 17 & 18 - in this trip

(Ghana)

Was covered with ash (young)
 when he bought it.
 People cut saplings for
 fence posts & wood.

Soil is not light, - some of
 it like gumbo.
 In drained areas better,
 also better on low ground.
 And also soft maple.
 Some ash was 18 in in diam,
 came here in 1858,

Name Wm. Wm.

Wm. Wm. in Clayton co.
 A man from there in
 legislation - & he suggests
 name.

No water power now near
 Wm.

5 mi. SE of Orono at old
 home he has set out
 about 50 acres - walnuts
 & cottonwood - also later
 a lot of ash.

Also single rows - mostly
 walnut - not well cared
 for. Firs sometimes.

In low places here -
Bundles cut, not tall,
then later in strips 5
rods wide, 4 or 5, 2 mi.
long, then 3 strips E &
W, $\frac{1}{2}$ mi long, each.
Then ~~1~~ strips 5 rods wide
across section diagonally -
all S.E. of town
all walnuts -

Varied -
then interplanted with
nearly all of them, very
alternate row - with
diamond willows -
Willows did better on
low land, - finally -
Willows have been cut
out several times for
temporary huts, for
wood (forest line).

Accidents - fires -
mostly where burned.
Overflow of Missouri has
done little harm. Not
frequent & in spring
of year. Could raise
crop. Only 4 $\frac{1}{2}$ years since 1857
In March or April.
Floods probably caused by
ice dams.

Little grain - out every
month in the year -
particularly in November
& spring & summer.
Maple floods come down
fast - 3-7 days.
Grain lower.

Mr. Henry Harlow
Mayor of Osage
Artisan well.

Visited Mr. Vincent-
Lewis & Clark land

4 camps in co. Aug. 8,
9, 10, 11, 1804 -

all on river.
3 still well marked -

History of the Expedition
under the command of
Lewis and Clark
Elliott Coles
in 4 vols.

Pub. by Francis P. Harper
1893

re. I
Camp Aug. 5 - Harmon p. 67
" 6 - " p. 68
" 7 - " p. 69
Monmouth - " 8 - pp. 69-70
" 9 - p. 70-71 -
" 10 - p. 71.
" 11 - pp. 71-2

C. G. Oliver

Onawa, Ia

Worked rubber at his house.
His wife is a sister of
Bernard Davis, my
pharmacist. They were
old settlers here.

Visited Parker Holbrook at Library
The Library is in a fine
building, largely gift of
Judge Addison Oliver.

Left Onawa at 8:30 PM
& went to Minn. Valley.
Bought box of plates at
Brown's & turned in.

Feb 13, 1910

Left for Co. Bluffs at
7 AM. Called up
Mr. Raymond Wilson, & he
joined me with Mr. Fitch,

the manual training teacher
We went to So. Omaha,

So. Omaha

photos

29-30 - Lusk & Co. while

work party & big river.

We went S. along CB & Al.
RR. as far as Officemen's
pit. This was badly
slumped & snow interbed.
Returns to Council Bluffs &
went to Fairmount Park
where I took a series of
pictures showing trees &
snow.

Then we walked north along
C. NW. RR to Aftonian
conglomerate. Took photos.
Water even grew in springs
both here & at So. Omaha.

165

The first big pit with spring
above Co. Bluffs belongs
to Coopers.

Harry Cooper - 125 Fairview Ave
Co. Bluffs.

has four bones. Write
to him.

There are also bones in
the Council Bluffs High
School & Wilson is to
get information about
them.

Left Co. Bluffs at 6:30
P.M. for Iowa City

Missouri Valley - Mich. 12-1910

Attended New. Karlov's train
meeting at Sioux City yesterday,
& came here last night.

Met Mr. Wattles, & obtained
profile.

Mr. Wattles showed me
profiles. They show that
Sediment has built up
dikes.

He says the low ground
at bluffs is 5-6 ft.
lower than benches of Missouri.

Mich. 11. Went out with French
at Sioux City - to golf club
links at N. end of Prince, St.
(+ Jackson?) street car line found
shipped Ectacorns (Murocranus
bed) half way up a slope

on N. side of creek. There are
boulders & pebbles here, & probably a
sand pit on top of rock.
older yellow loam shows in cut.

167

1/2 mi. ahead
1 mi. S. of Mondakia, 1/4 mile -
Bench No. - 52.7- 50.8, 56.3, 61.3
60, 65.5 54.0 57.2 60.7 59.1 60.4
56.3 57.9, 58.5 57.7 58.1
59.3 64.5, 64.0 62.3 59.9
60.2 (RR) 59.6 58.5 58.4
57.8, 57.5 56.9 57.7, 57.9 | 63.0
58.9 (57.9) 56.1 55.7 55.5 ^{solid}
₁₁₄
58.4 65.5 ^{in bluff}

This is on the line
(though middle) just 1 mi. S.
of section line running
through Mondakia.
Mr. Wattles called attention
to the fact that when the
rivers break over these dikes
they flood large areas.
The RR. grade from Mo. Valley
to near Missouri (before sand is
reached) is ~~about~~ a dead level.
This was surveyed by Mr. Wattles.

Stopped to see Mr. Chas.
Smith the brick man.

He says brickyard at
Dunlap —

Woolwine - Confield & Young
- Van Seoy

Logan - Van Seoy?

Mr. Valley - Chas Smith

None in Missouri co.

Has sold 10 to 12 hundred thousand
a year. Burned none last year.

Is now again burning.

Demand less, but he thinks cement
this not much much.

In his pit - 90-100 ft deep, of
than not more than 10 ft. post
Kansan. Then some Loveland

could see 2 or 3 ft, but at
I don't know south much

more, (also north) & below

that about 90 ft. of Kansan
(I could see 10-12 ft)

Then they strike sand (Aftonian?)

This is in pockets.

He rings blue & yellow loam.

Veritas Culamini

At N. end of M. O. exposure

over black layer there are also

1-2 ft. of dark brown silty

stuff with shales (I am

quite sure this belongs with

M. O., & is very limy

Above that, sharply cut off,

is a mass - 8 ft + of

yellow stuff, loam-like, but

hard with a few shales,

& it doesn't look just like

loam in texture, cleavage, etc.

The spring indicates that

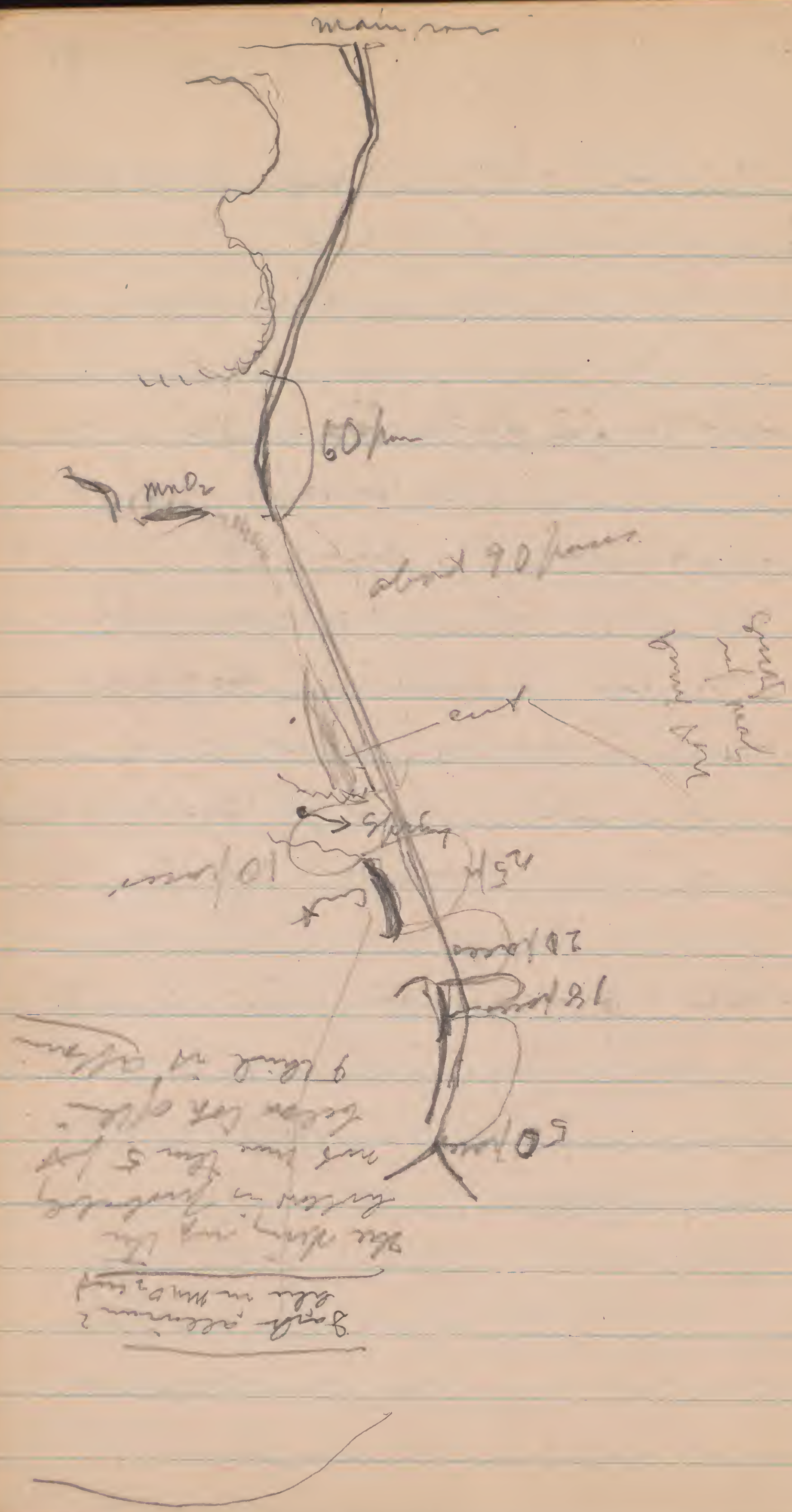
Aftonian is not far away

Synsphaerium obicoides is

common in somewhat open places

in Spring Hill

There is a spring ^{up the valley} along M. O. exposure



Nichols Bros. cement works
 Mrs. Valley
 V. Nevada co. - the older
 cement
 Took 12 photos - 4 (2 views)
 of hill with mound at
 Culavins, 4 views (33 & 2 maps)
 from top of pt. above Chas.
 Smith's brickyard, looking
 up bluff, and 4 (2
 different views of cut 66,
 the big Smith cut
 Left for Logan at 1:15 PM.

Reached Logan at 2 PM.
Mr. Peckenhough & Mr. McCabe
Sr. were not in town.

A fine bright day.

J. E. Sprinkle (~~Sprinkle & Sons~~)
N. W. Goodman.

Cement at Logan.

Sprinkle Bros —

Dunlap — no brickyard —

+ even cement works given up

though stock on hand.

Went up to Chas. L. Cron's.

From that hills rise from
90 to 120 ft. above terrace.

I measured from NW. cor. of
Court House grounds, & from
rise of 5 ft. to foot of hill
1 block N., on road to Cron's.
Then it is 90 ft. to top of
hill just beyond turn in road,
& the road then rises still
higher, & at Cron's it is 120 ft.

The cedar log on Mr.
Locklin's place in gulch
was down in blue clay about
40 ft. down in gulch —
in S.E. 1/4 sec. 7 — in SW
cor. of Mangrove traps.
Mr. Locklin's daughter says
there is now above the
blue clay in which
log was found.

Expenses - Sioux City Trip

Mch. 10 - Fare to Cedar Rapids	.50
Cab ²⁵ - Fare to Sioux City ^{6.41}	6.66
Sleeper 1.50 Porter ²⁵	1.75
Mch. 11. Breakfast en route	.50
Dinner, Sioux City	.75
Lunch " "	.15
* Fare to Miami Valley -	1.
Mch. 12. Hotel Muen -	1.50
Fare to Logan -	.17
Fare to Cedar Rapids	4.
Fare to West Liberty	.73
Fare to Sioux City -	.32

Account - Aug. 1909

Aug. 21- Orleans & Subley 8.72
 Transfer Subley .25
 Supper - Windsor 50
 Aug. 22- Lodging " 50
 RR to Sioux Cy. - 1.47
 Breakfast " " (restaurant) .30
 RR to Mo. Valley 1.52
 Hotel Miller - Dinner & sup. ^{Windsor} 1.00
 Team to Logan & return 1.50
 Aug. 23- RR to Cedar Rapids 4.89
 RR to Iowa City .50
 Breakfast RR restaurant .30
 Aug. 25- RR to Cedar Rapids .50
 Cab .25
 RR to Mo. Valley 4.89
 Aug. 26 Breakfast - Miller hotel .50
 Express - 3 packets 1.20
 Transfer to Logan .25
 RR to Logan .17
 C.F. Pecksham - Team & buggy 1.50
 Lodging - Miller hotel 50
 Transfer (to car) 20
 RR to Mo. Valley 17

Aug. 27- Breakfast - Miller hotel 50
 Lunch - lunch room .40
 P.E. Robinson - team & buggy 2.00
 Supper - Miller hotel .50
 Transfer material .15
 (RR to Cedar Rapids 4.89
 Breakfast 25, RR to Iowa City ⁵⁰)
 RR to Carver C. 2.00 1.42
 RR to Mason Cy C. 2.00 2.38
 Dinner ^{at} McBride's 25
 Sep. 2- Supper McBride's 25
 " 3- Breakfast, dinner, supper 1.75
 " 4- Breakfast, supper - 25
 Team - ^{first class} ^{to} Cedar Rapids 2.50
 RR to Iowa C. 1.40 3.38
 " Bicycle to Iowa (25)
 Lunch, ^{supper} ^{at} Sarsaparilla .25
 " 4 Lodging Hotel Iowa .40
 " 5- Breakfast " .35
 RR to Akron 1.18
 Bkfst .25
 Dinner at RR restaurant ^{cash} .30
 Sep. 5- (supper ⁵⁰ Lodging ⁵⁰ New Kendall ^{1.00}) 3.50
 " 6- Breakfast ⁵⁰, dinner ⁵⁰, supper ⁵⁰ 2.00
 " 7- Lodging ⁵⁰ 50
 Sep. 7- Breakfast 50

Sep. 7. RR. Chalmers, bike ¹³ ²⁵ .38
 RR. to Sioux City - 1.07
 Mike " " .25
 Lunch - (noon) .25

Supper - West Hotel Cafe 55
 Room " " 1.00
 Sep. 8 - 2 day plates Zimmerman Bros. 1.00
 Breakfast - West Hotel .35
 RR. to Sargent's Bluff .15
 Lunch - restaurant Sargent's Bluff .20
 Lunch " " " .25

RR. to Sioux City .15
 Room " " 1.00
 Sep. 9 - Breakfast - West Cafe .30
 Lunch for room - Frank's cafe .25
 Carfare Riverdale & return .10
 Supper - West Cafe .50
 Room " " 1.00

Sep. 10 - Breakfast ³⁵ West Cafe
 RR. to Mrs. Valley 1.52
 Mike .25
 Dinner Frank's Cafe ⁴⁰ .20
 Supper Washington Carillon .20
 Street car to Manning side station 10
 " to S. Sioux City depot 10
 Hotel Miller - no money Room 50

190
 2 day plates, Brown-gloden 1.20
 Sep. 11 - Hotel Miller - breakfast 1.00
 RR. to Co. Bluffs .43
 Carfare to Omaha 10
 Two lunches (noon & supper) Florence 35
 Sep. 12 - Carfare in Omaha - to Omaha 10

Carfare to Co. Bluffs .15
 RR. to Mrs. Valley .43
 Miller Hotel - room .50
 Sep. 13 " " breakfast .50

RR. to Logan .17
 Lunch - Helen's restaurant .25
 Team (2. Pendergast) 1.00
 RR. to Mrs. Valley .17
 Room - Miller .50

Sep. 14 - Breakfast, " .50
 Team P.E. Robinson 1.50
 Dinner ⁵⁰ supper ⁵⁰ room ⁵⁰ 1.50

Sep. 15 - Breakfast ⁵⁰, RR. to Brook ³³ .83
 2 meals ^{1.00} RR. to Logan ⁽²⁾ 32 1.32
 Labor, Lister Adams 5.00
 RR. to Mrs. Valley .17
 Lodging .50
 25 & 26 Aug. 1909 Team room in 1.50
 Wm. Guyett
 ✓ Sep. 15.

Mefferd - 3 1/2 mi S.E. of
Woodbine - has opened
big sand bank.

Sep 16. Breakfast 50

Dinner to W. & Babcock, Inc. .25

RR to Co. Bluffs .43

Lunch Co. Bluffs .20

RR, Crescent to Hastings .29

Pike .25

Hotel 7.50

Sep 17 RR to Osawa ⁷⁷ ¹⁴ ¹⁴ .91

Pike - 25

RR to Whiting, ³⁰ breakfast ²⁰ 50

Livery - Cochran - Whiting 1.50

Dinner - hotel - Whiting .45

Supper " lunch room 25

RR to Cedar Rapids 5.35

Pike - .45

to Iowa City .58

from Pike .25

7 -	3 -	55
8 -	8 -	305
9 -	8 -	30
	5 -	50
10 -	6 -	395

Culavin is correct

